NOTICE OF PUBLIC HEARING
SUDBURY CONSERVATION COMMISSION
Virtual Meeting 6:30 PM

The Sudbury Conservation Commission will hold a public hearing to review an Amendment to the Order of Resource Area Delineation filing (DEP #301-1193) to clarify jurisdictional wetland resource areas subject to the Wetlands Protection Act versus the Sudbury Wetland Administration Bylaw, to classify streams as intermittent or perennial, and to enter into the record the status of vernal pools along the MassDOT Right of Way in Sudbury, MA. MassDOT Highway Division, applicant. The hearing will be held on Monday, June 29, 2020 at 6:30 pm, via remote participation through Zoom. The link to join this Zoom meeting (https://us02web.zoom.us/j/98803339162) as well as copies of the application, may be reviewed on the Conservation Commission web page at: https://sudbury.ma.us/conservationcommission/meeting/conservation-commission-meeting-monday-june-29-2020/. Please contact the Conservation Office with any questions at 978-440-5470.

SUDBURY CONSERVATION COMMISSION
June 15, 2020

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, Secretary & CEO
Jonathan L. Gulliver, Highway Administrator

MassDOT
Massachusetts Department of Transportation
Highway Division

June 15, 2020

Sudbury Conservation Commission
Department of Public Works
275 Old Lancaster Road
Sudbury, MA 01776

Subject: ORAD Amendment Request, Bruce Freeman Rail Trail, Sudbury, MA
DEP File No. 301-1193

Dear Commissioners:

Massachusetts Department of Transportation, Highway Division (MassDOT) submits this Amendment Request for the Order of Resource area Delineation (ORAD) issued by the Sudbury Conservation Commission (DEP File No. 301-1193) to the Town of Sudbury for the Bruce Freeman Rail Trail (BFRT) right-of-way property. The ORAD was recently extended by the Commission for an additional three years and is scheduled to expire in October 2022.

State and local wetland resource areas were approved by the Sudbury Conservation Commission through an ORAD dated November 2016. The ORAD was granted to the applicant, the Town of Sudbury, with permission from the property owner, Massachusetts Department of Transportation (MassDOT), to advance the design of the BFRT. However, the ORAD (and the submitted Abbreviated Notice of Resource Area Delineation (ANRAD) plans themselves) did not distinguish between Sudbury Wetland Administration Bylaw (Bylaw) jurisdictional wetlands and Massachusetts Wetlands Protection Act (WPA) jurisdictional wetlands. Furthermore, due to drought conditions at the time of ANRAD review, the Commission did not accept the classification of intermittent versus perennial streams as presented in the ANRAD application. The referenced ORAD was issued under both the Bylaw and WPA because at the time of filing the Applicant was the Town of Sudbury and not MassDOT. State agencies such as MassDOT are not ordinarily subject to local bylaws. MassDOT is seeking to make these distinctions as defined under the WPA in order to proceed with the permitting phase of the BFRT in an accurate manner and ensure compliance with WPA regulatory performance standards.

MassDOT reviewed the existing conditions plans of the proposed BFRT in Sudbury, MA to confirm the presence (or lack thereof) of Bordering Vegetated Wetlands (BVW), and classify the intermittent and perennial streams, as such terms are defined under the WPA. The results are discussed below.

Subsequent to the ORAD being issued in 2016, additional detailed field investigations of potential vernal pools were conducted by VHB in 2017 and Stantec in 2018 in accordance with MA Natural Heritage and Endangered Species program (NHESP) guidance. MassDOT would like to enter these results into the record and identify those two pools (or portions thereof) that are within the right of way as certifiable vernal pools in accordance with NHESP Guidance.

Isolated Vegetated Wetlands

ANRAD plans were compared with publicly available wetlands information on MassGIS such as MassDEP wetlands, hydrological connection data layers, along with USGS maps, and identified nine distinct wetland flag series to review in the field based on whether they appeared isolated in the landscape or if there was a lack of mapped hydrological connection to another resource area. One additional wetland, WF-36 series, was identified as isolated on the plans and presumed to be correct. On April 1 and May 8, 2020, wetland scientists conducted a field inspection of these identified areas to confirm if the delineated vegetated wetlands are bordering wetlands under the WPA or isolated wetlands only under the Bylaw. Based on the results of the field inspection, MassDOT identified seven (7) vegetated wetland areas that are clearly isolated. See Figure 1 in Attachment A.

The identified freshwater wetland flag series listed in Table 1 should not be considered BVWs under the WPA because they are isolated in the landscape and do not border on a surface water body as required under 310 CMR 10.55. Nor should these flag series be considered Isolated Land Subject to Flooding under the WPA as they do not meet the volume and depth requirements under 310 CMR 10.57.

Waterways

Based on the plan assessment, review of USGS map information, and USGS StreamStats™ analysis, four perennial streams within the BFRT right of way were identified. The remaining bank flag series are to be considered intermittent. Finally, portions of one bank series do not meet the state WPA definition of a stream. See Table 1 and the summary below for further information.

Pursuant to 310 CMR 10.58(2)(a)1c, “a stream shown as intermittent or not shown on the current USGS map or more recent map provided by the Department, that has a watershed size less than one square mile, is intermittent unless the stream has a watershed size of at least ½ (0.50) square mile and has a predicted flow rate greater than or equal to 0.01 cubic feet per second at the 99% flow duration using the USGS Stream Stats method.”

Hop Brook (BF32 & BF33), Pantry Brook (PS1), a tributary to Pantry Brook (BF12), and a tributary to Cold Brook (BF3) are all USGS-mapped perennial and thus have associated 200-foot Riverfront Area under the WPA. Using the USGS Stream Stats program, the remaining streams mapped as intermittent or flagged in the field as identified in the plans were evaluated (see Attachment B). Because none of these streams are mapped as perennial by USGS, and all have watershed sizes of less than ½ square

mile as indicated by the Stream Stats program, none are considered perennial under the WPA regulations. Thus, none of these intermittent streams have associated Riverfront Area.

Portions of bank flag series BF-30 are up gradient of any other resource area according to the 2016 ANRAD existing condition plans (Sheets 17 and 18). This condition was field verified and determined that there was not a freshwater wetland (bordering or otherwise) or surface water body up gradient of these sections. These portions include flags BF 30-106 through BF 30-126, BF 30-132 through BF 30-139, and BF 30-333 through BF 30-321 (one continuous section on the east side of the trail), and flags BF 30-302 through BF 30-320 (one continuous section on west side of trail). While this stream may be considered jurisdictional under the Bylaw, in our opinion it would not be a regulated resource area under the WPA, as these portions do not meet the definition of a stream[1].

Perennial and intermittent streams have been categorized in Table 1 on the next page according to the WPA definitions.

Vernal Pools

The attached reports (Attachment C) have identified three additional certifiable vernal pools: PVP 4, PVP 11 and PVP 12a. Of these, only PVP 4 (associated with WF 6) and PVP 11 (associated with WF 24) appear to be within the BFRT ROW. It is important to note that while several of the IVWs identified in Table 1 were surveyed, no vernal pool species were found within these wetlands according to the survey results.

[1] According to 310 CMR 10.04, a "Stream means a body of running water, including brooks and creeks, which moves in a definite channel in the ground due to a hydraulic gradient, and which flows within, into or out of an Area Subject to Protection under M.G.L. c. 131, § 40. A portion of a stream may flow through a culvert or beneath a bridge. Such a body of running water which does not flow throughout the year (i.e., which is intermittent) is a stream except for that portion **upgradient of all bogs, swamps, wet meadows and marshes."** [emphasis added]

Table 1 – Summary of Recommended Resource Area Classification under the WPA

FLAG SERIES	PLAN SHEET	CLASSIFICATION/STREAM TYPE UNDER WPA	APPROXIMATE AREA (IVW)	COMMENTS
BF36	2	Intermittent		
BF33	8	Perennial		Hop Brook
BF32	7, 8, 16	Perennial		Hop Brook
BF27	24	Intermittent		
BF26	24	Intermittent		
BF15-24	26, 28, 29	Intermittent		
BF23	27	Intermittent		
BF30*	17, 18	Intermittent *Flags BF 30-100 to 105, 30-200-212, 30-300 to 308, 300-13, 30-320 and 30-321 only*		Unnamed tributary to Hop Brook
BF21	29, 30, 31	Intermittent		
BF19	33	Intermittent		
BF 18	33	Intermittent		
BF17	33, 34	Intermittent		Not shown on USGS stream stats
BF16	34	Intermittent		
PS1	35, 36, 37	Perennial		Pantry Brook
BF15-6	47	Intermittent		
BF12	38, 39, 40	Perennial		Unnamed tributary to Pantry Brook
BF8	42, 43, 44, 48	Intermittent		Cold Brook
BF6	42, 43, 44, 48	Intermittent		Cold Brook
BF7	45	Intermittent		Not shown on USGS streamstats
BF5	48	Intermittent		
BF3	51, 52	Perennial		Unnamed tributary to Cold Brook
BF2	54, 55	Intermittent		
WF38	3	Isolated/Non-jurisdictional	1,550 sf	Included in VP survey (PVP ID 16)
WF36	22	Isolated/Non-jurisdictional	3,315 sf	Included in VP survey (PVP ID 15)
WF34	10	Isolated/Non-jurisdictional	~ 3,200 sf	Included in VP survey (PVP ID 14)
WF33	10	Isolated/Non-jurisdictional	1,200 sf	Not included in VP survey
WF31	18	Isolated/Non-jurisdictional	3,250 sf	Not included in VP survey
WF20	31	Isolated/Non-jurisdictional	~1,000 sf	Included in VP survey (PVP ID 10)
WF15	38	Isolated/Non-jurisdictional	850 sf	Not included in VP survey

ORAD Amendment Request Details

MassDOT requests that the Sudbury Conservation Commission revise the jurisdictional status of the previously approved wetland resource area delineation boundary to clarify status under the WPA and issue an amended ORAD to reflect any agreed upon jurisdictional changes under the WPA. Specifically, MassDOT is seeking to specify the Isolated Vegetated Wetlands as listed in Table 1 as non-jurisdictional under the WPA. Furthermore, the classification of intermittent and perennial should be documented in accordance with WPA regulations at 10.58 2(a)1 in the ORAD, as well as classification of the portions of flag series BF30 that do not meet the WPA definition of a stream. MassDOT is also seeking to enter the vernal pool survey results into the record as described.

MassDOT also requests that the ORAD be transferred to MassDOT from the Town of Sudbury to MassDOT as they are the property owner. The proposed activities to construct the BFRT would be analyzed in a separate Notice of Intent prepared by MassDOT as the Applicant under the WPA.

This Request was prepared in accordance with the Massachusetts Wetland Protection Act (MGL c.131 s.40) and implementing Regulations (310 CMR 10.00). This Amendment Request is being submitted for the Commission's review at the next available public hearing on June 29, 2020. If the Commission would like to conduct a site walk prior to that date or has any questions regarding this request, please do not hesitate to contact me at Timothly.Dexter@state.ma.us.

Sincerely,

Tim Dexter

Tim Dexter
Fish & Wildlife Supervisor
MassDOT Highway Division

cc: DEP NERO

Attachments

Attachment A – Figures
Attachment B – Stream Stats results
Attachment C – Vernal Pool Surveys

Attachment A - Figure 1

Isolated Vegetated Wetland Locations

G:\Projects2\MA\Sudbury\4229.44\MXD\Aerial_Locus_20200519.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

LEGEND

- IVW/Non-WPA Jurisdictional
- Approximate Route of Bruce Freeman Rail Trail

USGS Hydrography

- Perennial Stream
- Intermittent Stream

DEP Wetlands (2005)

- Hydrologic Connection
- Wetlands
- Open Water

Scale 1:14,400
1 inch = 1,200 feet
0 600 1,200 Feet

Basemap: 2019 Orthoimagery, MassGIS

Locus Map

CONCORD
MAYNARD
LINCOLN
STOW
SUDBURY
WAYLAND
FRAMINGHAM

Haynes Road
Mossman Road
Panty Brook
Starview Drive
Woodmere Drive
Ridge Hill Road
Hunt Road
Thompson Drive
Bishop Lane
Juniper Road
Hilltop Road
Mark Lane
Willis Road
Martin Drive
Minebrook Road
Morse Road
Fern Trail
Lincoln Road
Sawmill Lane
Bridge Brook
Codman Drive
Goodnow Road
Crescent Lane
Maynard Road
Clark Road
Newbridge Road
Churchill Street
Hudson Road
Candy Hill Road
Plympton Road
Bowen Circle
Saxony Drive
Hop Brook
Old Lancaster Road
Colonial Road
Peakham Road
Fieldstone Farm Road
Water Row
Brook Lane
Wildwood Lane
Pennymeadow Road
Brewster Road
Old Sudbury Road
Forest Street
Dudley Brook
Gerry Drive
Plantation Circle
Goodmans Hill Road
Nashoba Road
Wolbach Road
Water Row Road
Walkup Road
Kato Drive
River Road
Codjer Lane
Union Avenue
Clark Lane
Indian Ridge Road
Hillside Place
Walker Farm Road
Metacomet Way
Greenhill Road
Old County Road
Massasoit Avenue
Station Road
Boston Post Road

15 20 36 31 33 34 38

117 27 27 20

Bruce Freeman Rail Trail Sudbury, Massachusetts

Epsilon Associates Inc.

Figure 1
Aerial Locus Map

Attachment B

USGS Stream Stats Results

StreamStats Report

Region ID: MA
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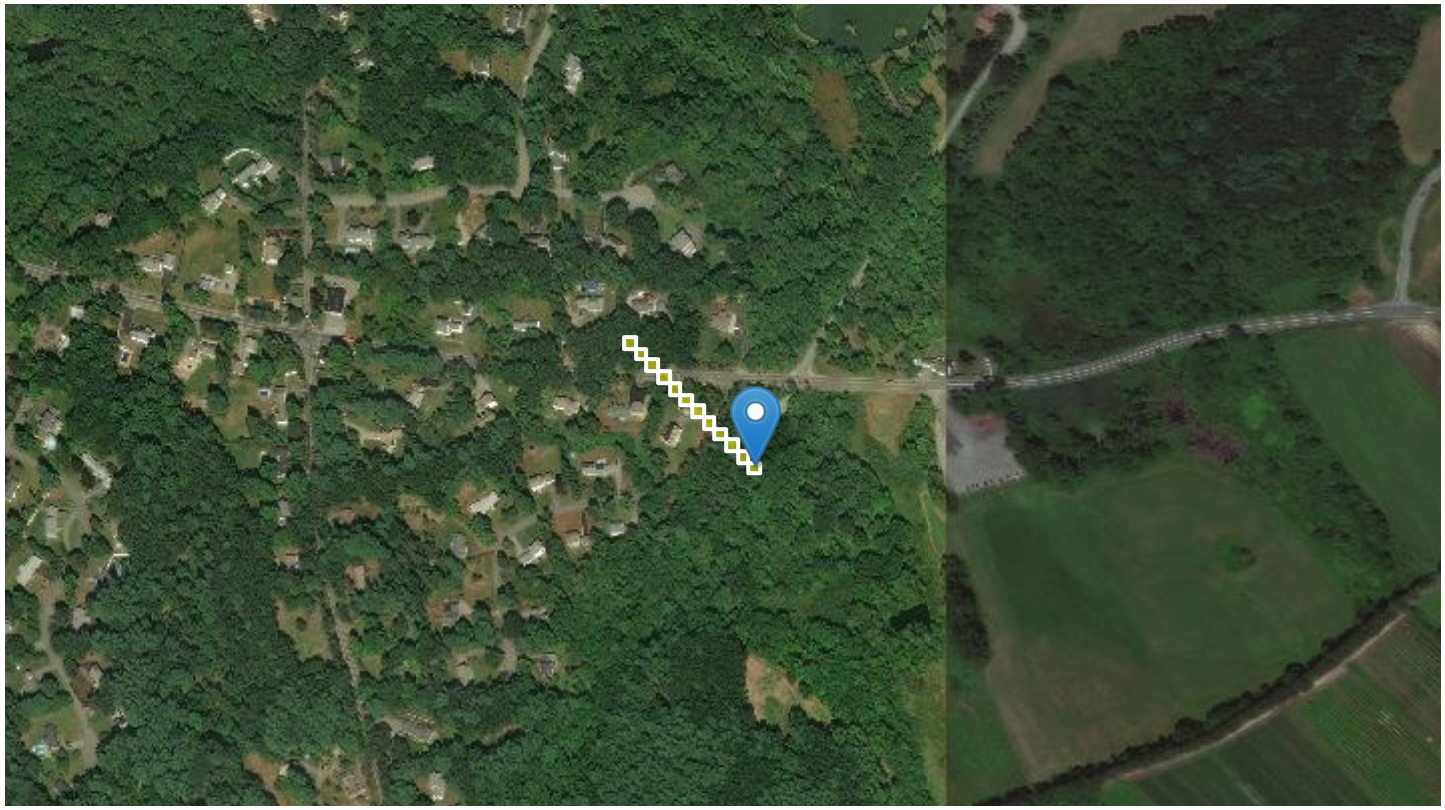

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.000463	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	1.56	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	-100000	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.000463	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	1.56	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	-100000	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit

Low-Flow Statistics Citations

Application Version: 4.3.11

StreamStats Report

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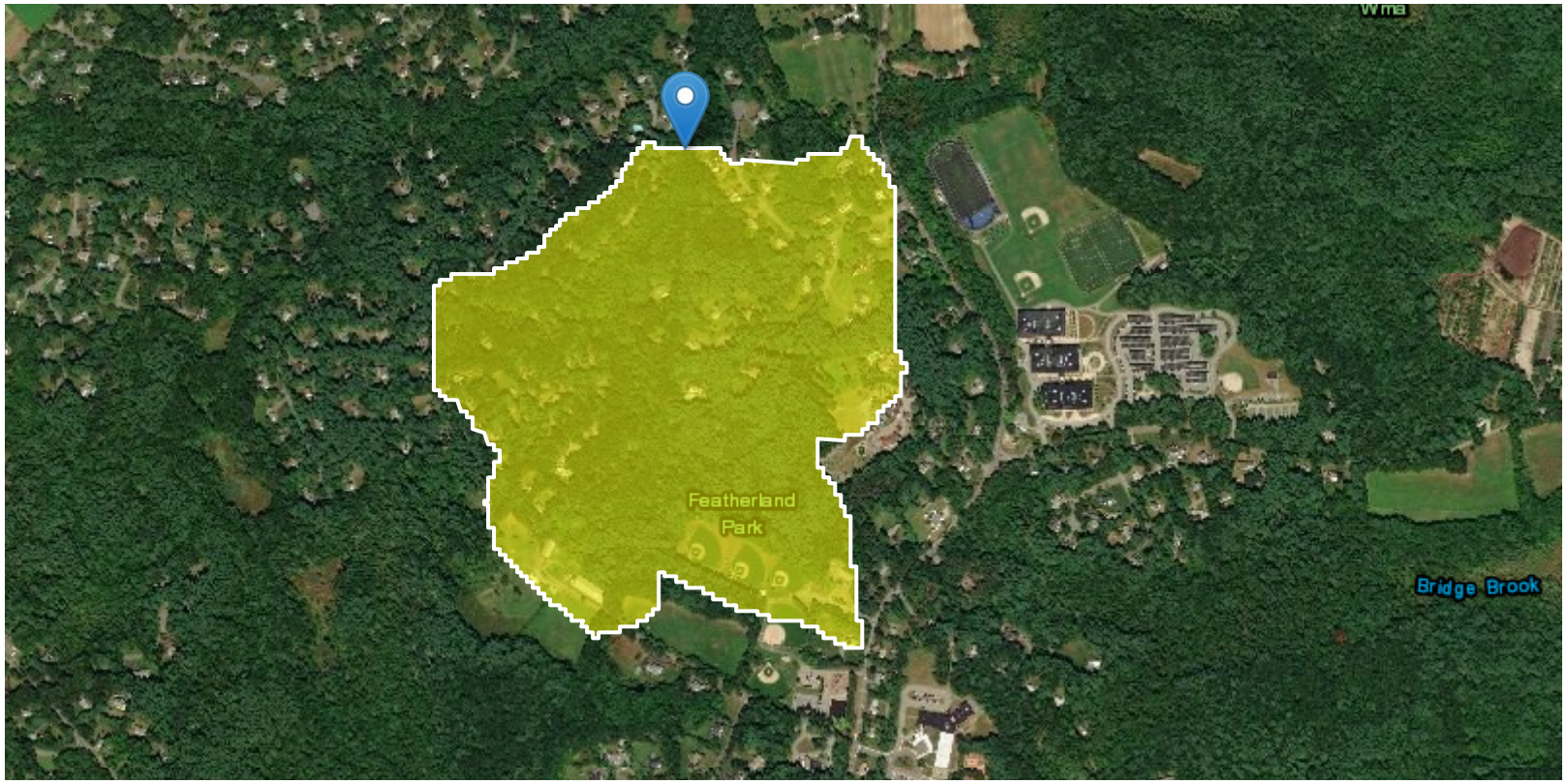

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.22	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	4.488	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.23	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.22	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	4.488	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.23	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0182	ft^3/s
7 Day 10 Year Low Flow	0.00796	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

StreamStats Report

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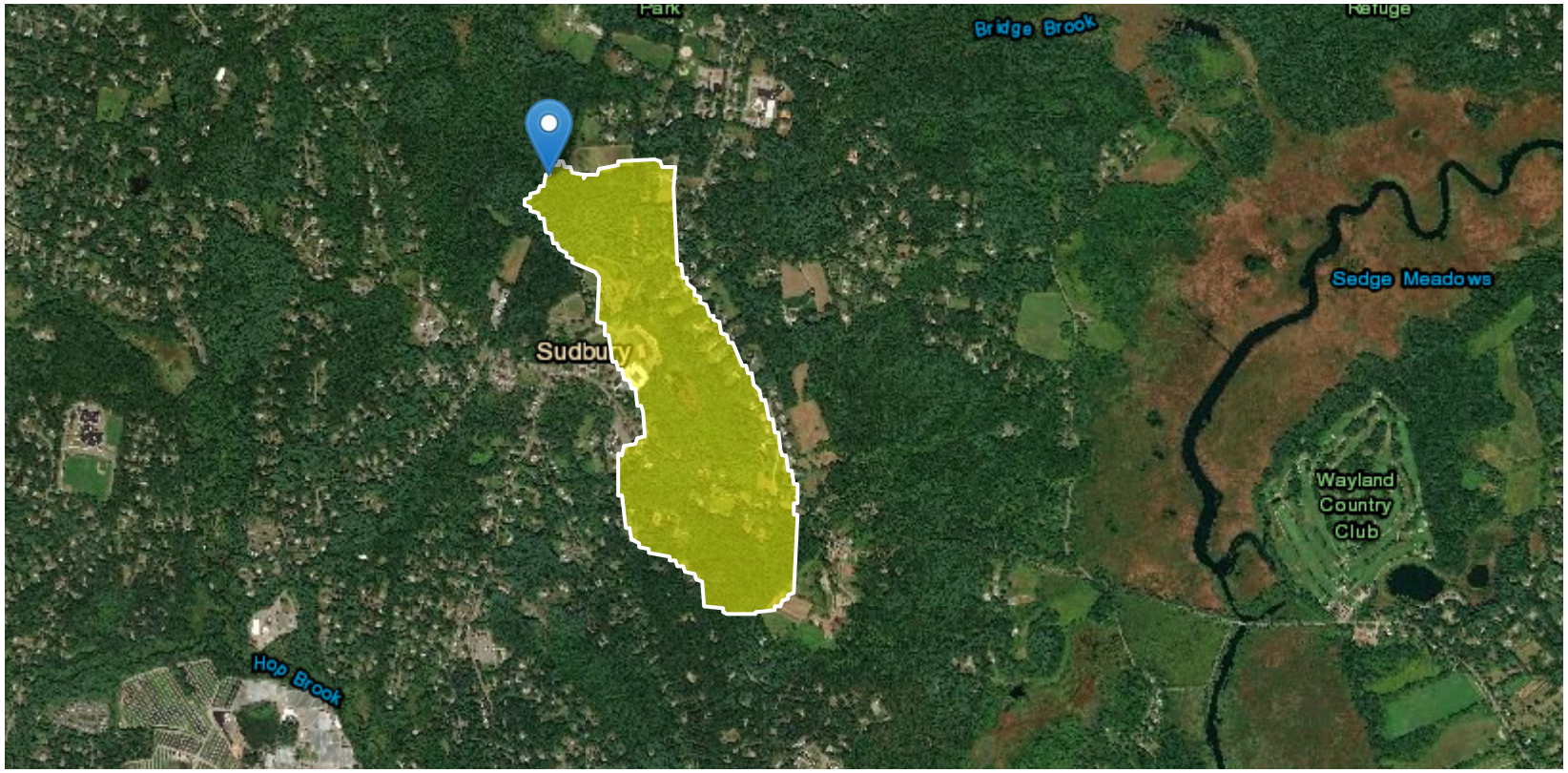

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.31	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	3.67	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.0607	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.31	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	3.67	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.0607	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errorsOne or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0137	ft^3/s
7 Day 10 Year Low Flow	0.00458	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

StreamStats Report

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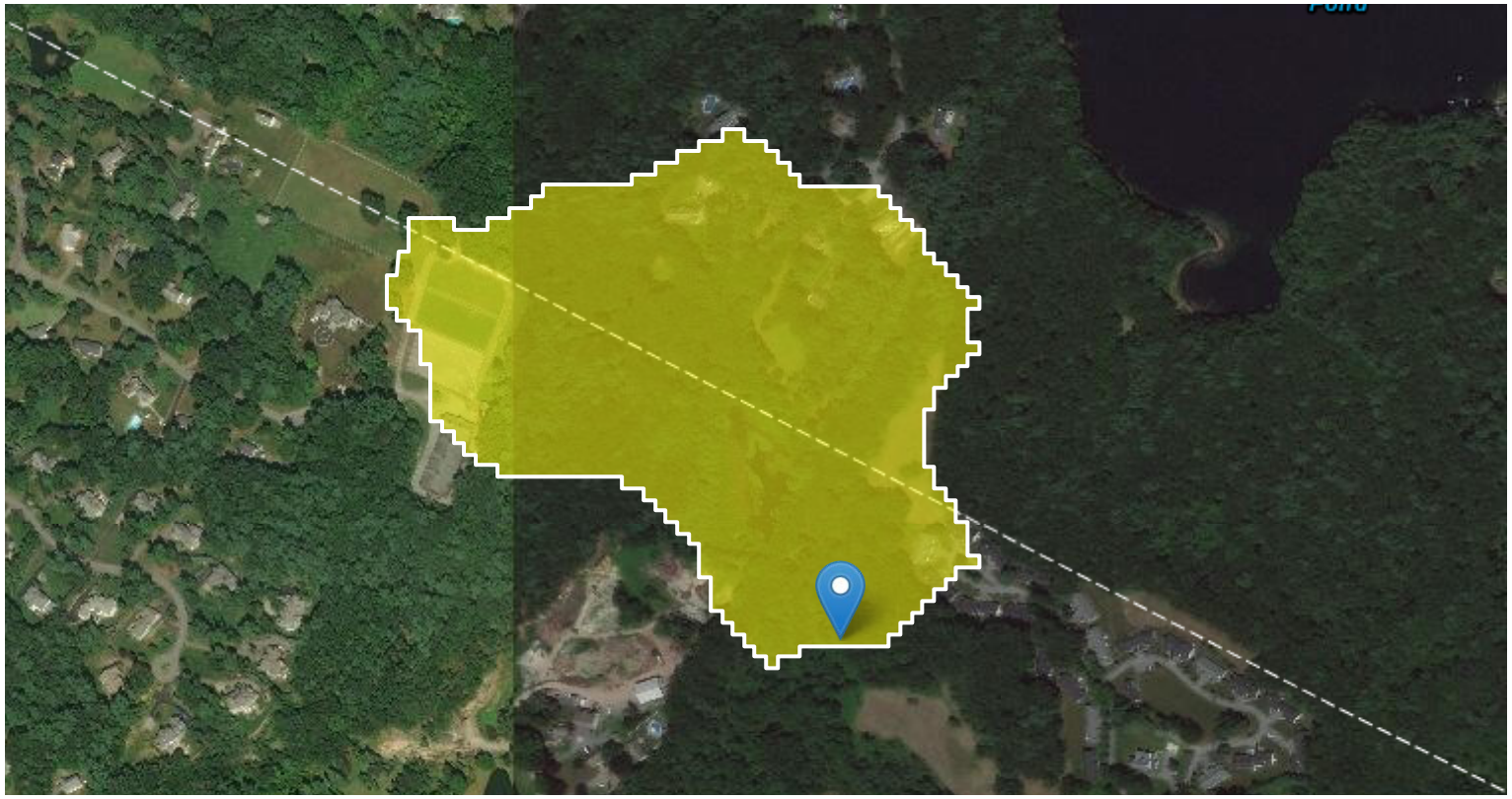

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0599	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.973	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.0938	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0599	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.973	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.0938	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00236	ft^3/s
7 Day 10 Year Low Flow	0.00075	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

StreamStats Report

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Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.1	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	0.27	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.41	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.1	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	0.27	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.41	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00504	ft^3/s
7 Day 10 Year Low Flow	0.00125	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

StreamStats Report

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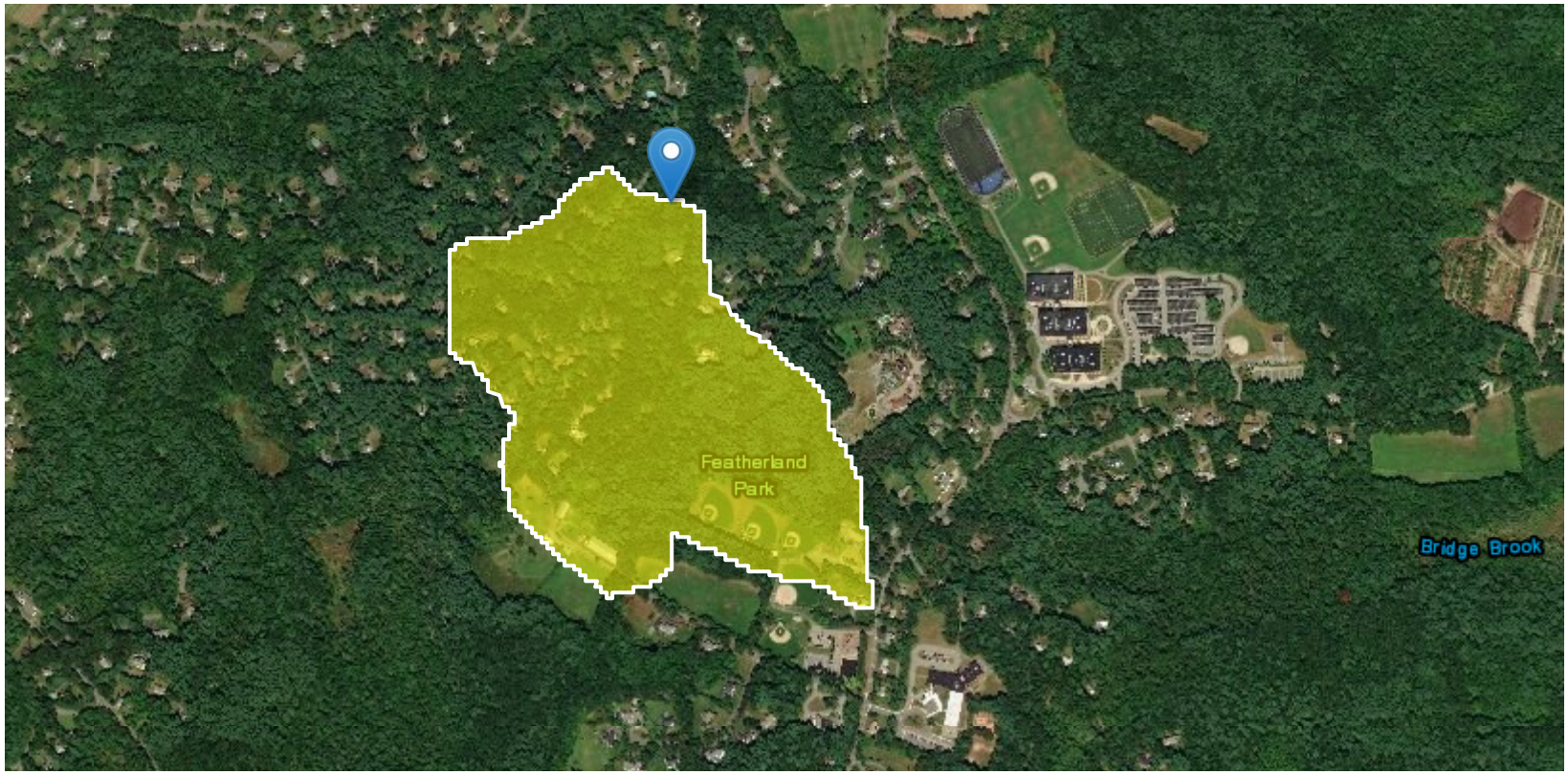

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.15	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	4.861	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.18	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.15	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	4.861	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.18	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0105	ft^3/s
7 Day 10 Year Low Flow	0.00436	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

StreamStats Report

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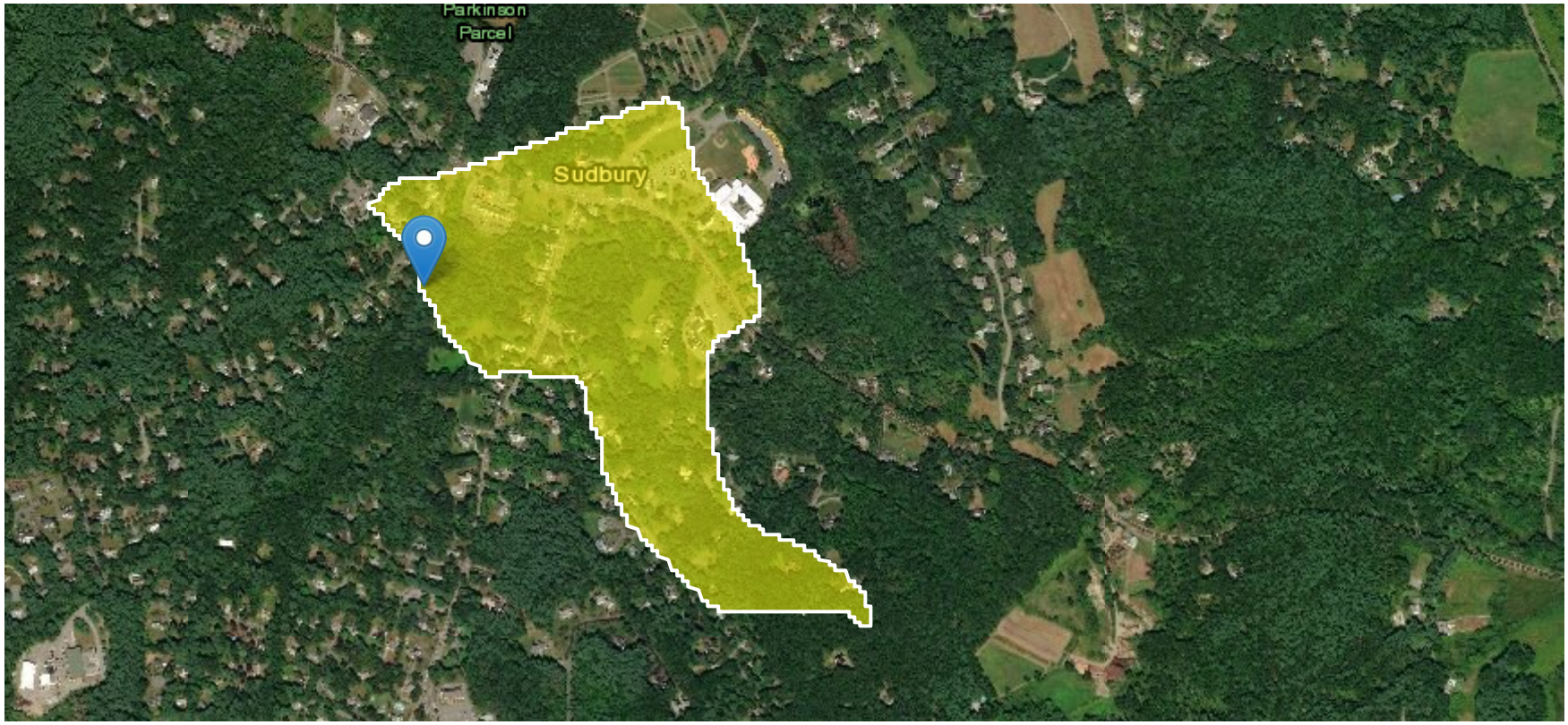

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.16	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	2.589	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.000877	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.16	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	2.589	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.000877	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.00395	ft^3/s
7 Day 10 Year Low Flow	0.00102	ft^3/s

Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

StreamStats Report

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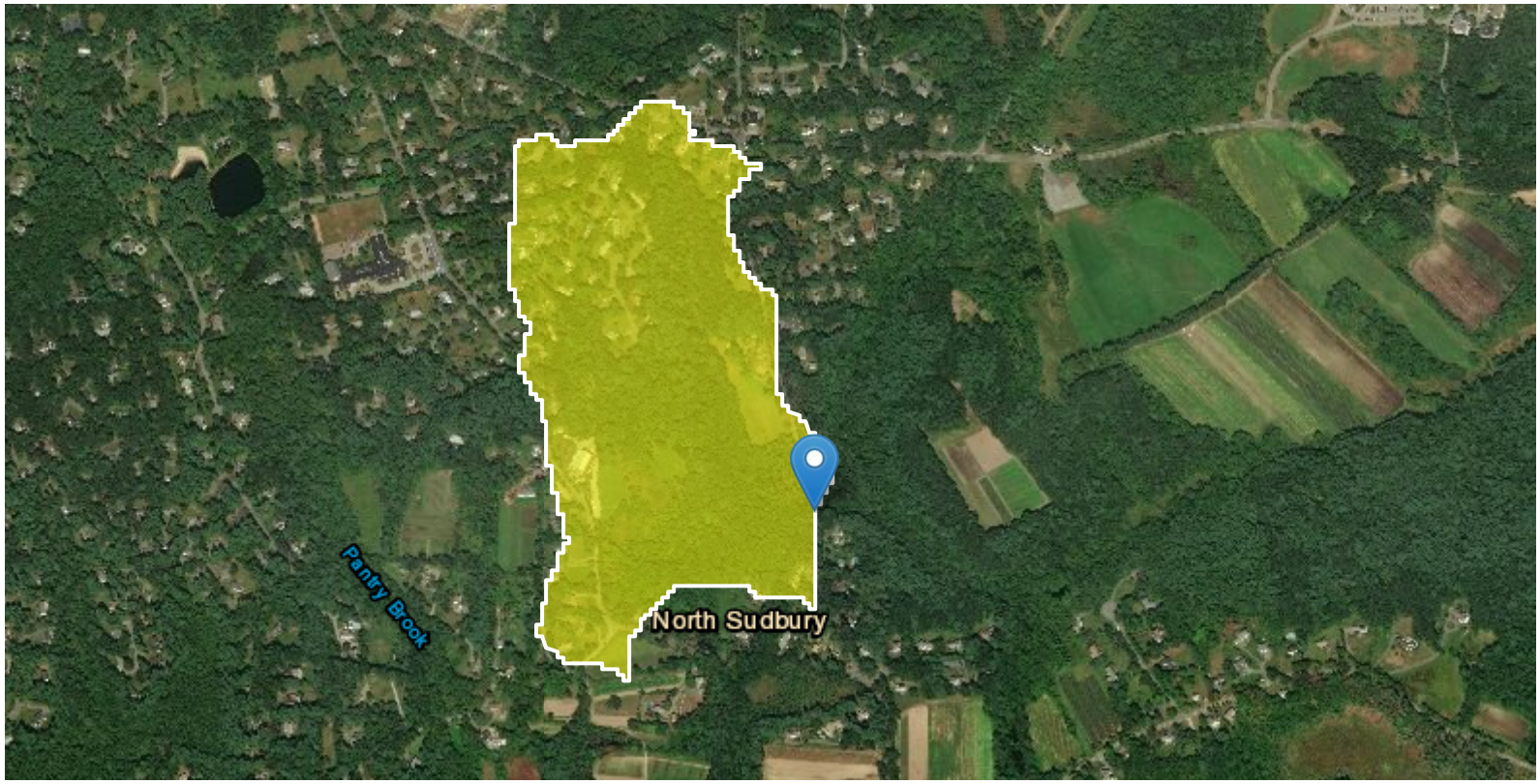


Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.16	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	1.946	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	0.35	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.16	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	1.946	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	0.35	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Disclaimers[Statewide Low Flow WRIR00 4135]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit
7 Day 2 Year Low Flow	0.0132	ft^3/s
7 Day 10 Year Low Flow	0.00514	ft^3/s

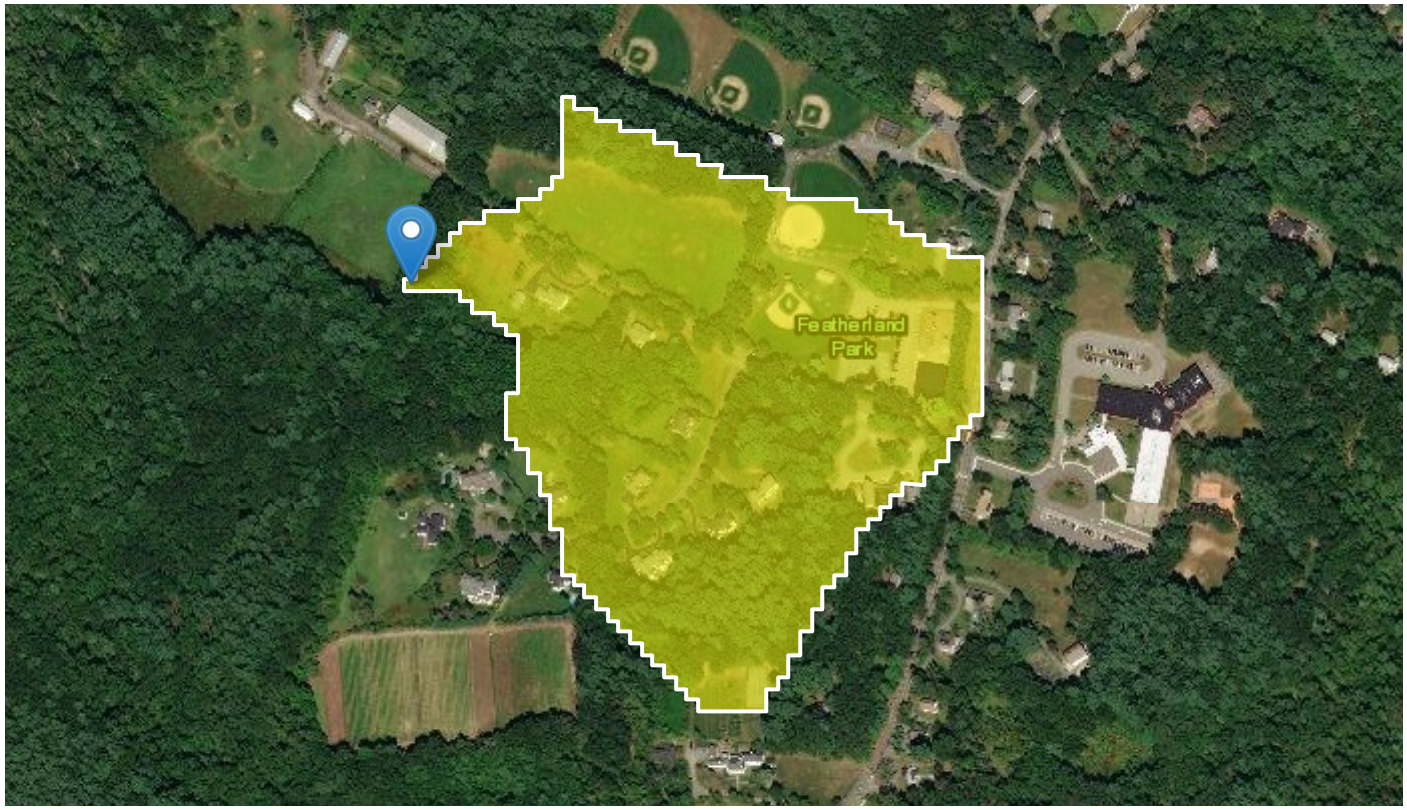
Low-Flow Statistics Citations

Ries, K.G., III,2000, Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135, 81 p. (http://pubs.usgs.gov/wri/wri004135/)

Application Version: 4.3.11

StreamStats Report

Region ID: MA
Workspace ID: MA20200514194929069000
Clicked Point (Latitude, Longitude): 42.39274, -71.41078
Time: 2020-05-14 15:49:46 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.0587	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM	1.79	percent
DRFTPERSTR	Area of stratified drift per unit of stream length	-100000	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0587	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM	1.79	percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	-100000	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit

Low-Flow Statistics Citations

Application Version: 4.3.11

StreamStats Report

Region ID: MA
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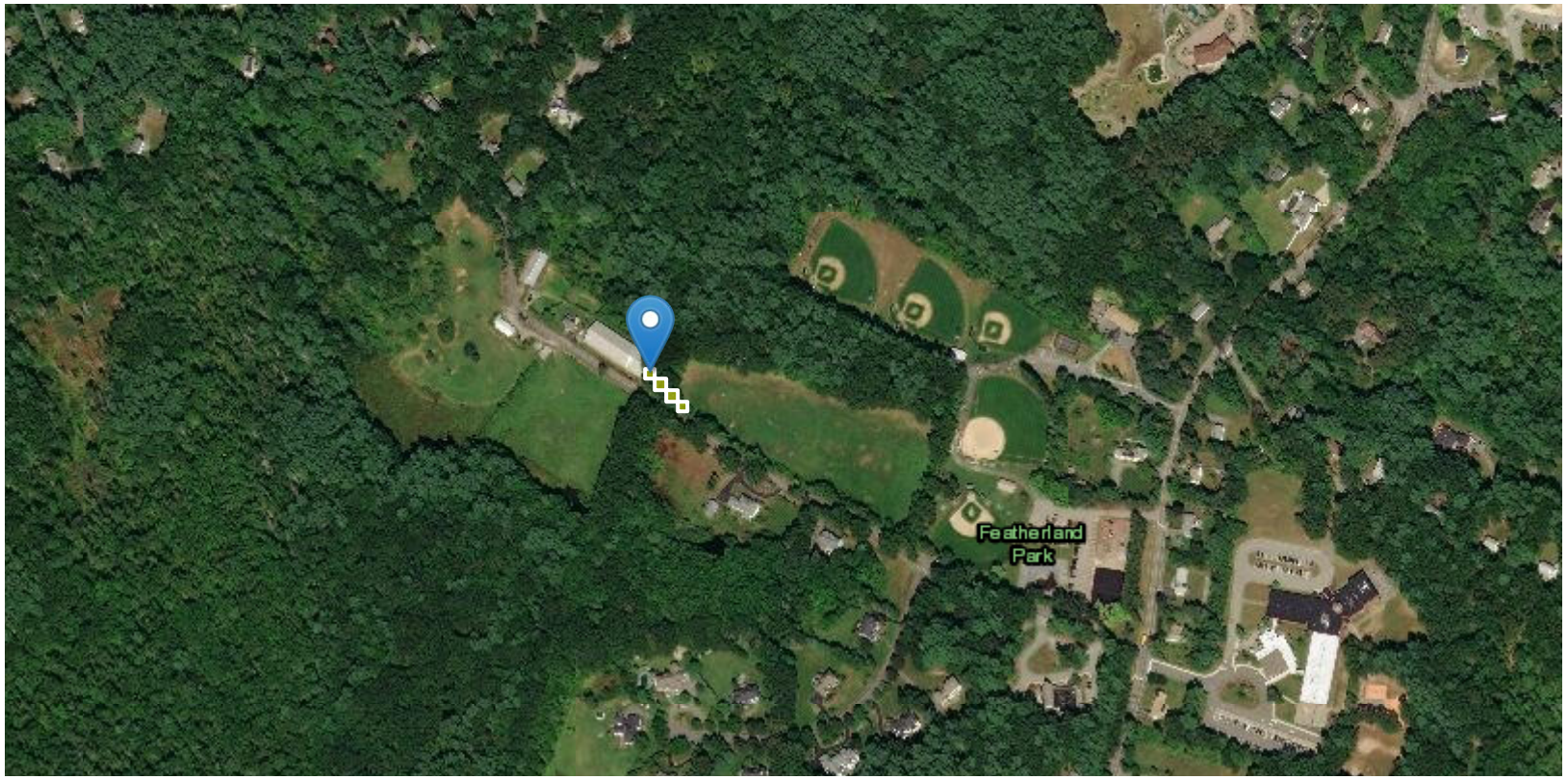
Time: 2020-05-14 15:30:12 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	0.000154	square miles
BSLDEM250	Mean basin slope computed from 1:250K DEM		percent
DRFTPERSTR	Area of stratified drift per unit of stream length	-100000	square mile per mile
MAREGION	Region of Massachusetts 0 for Eastern 1 for Western	0	dimensionless

Low-Flow Statistics Parameters[Statewide Low Flow WRIR00 4135]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.000154	square miles	1.61	149
BSLDEM250	Mean Basin Slope from 250K DEM		percent	0.32	24.6
DRFTPERSTR	Stratified Drift per Stream Length	-100000	square mile per mile	0	1.29
MAREGION	Massachusetts Region	0	dimensionless	0	1

Low-Flow Statistics Flow Report[Statewide Low Flow WRIR00 4135]

Statistic	Value	Unit

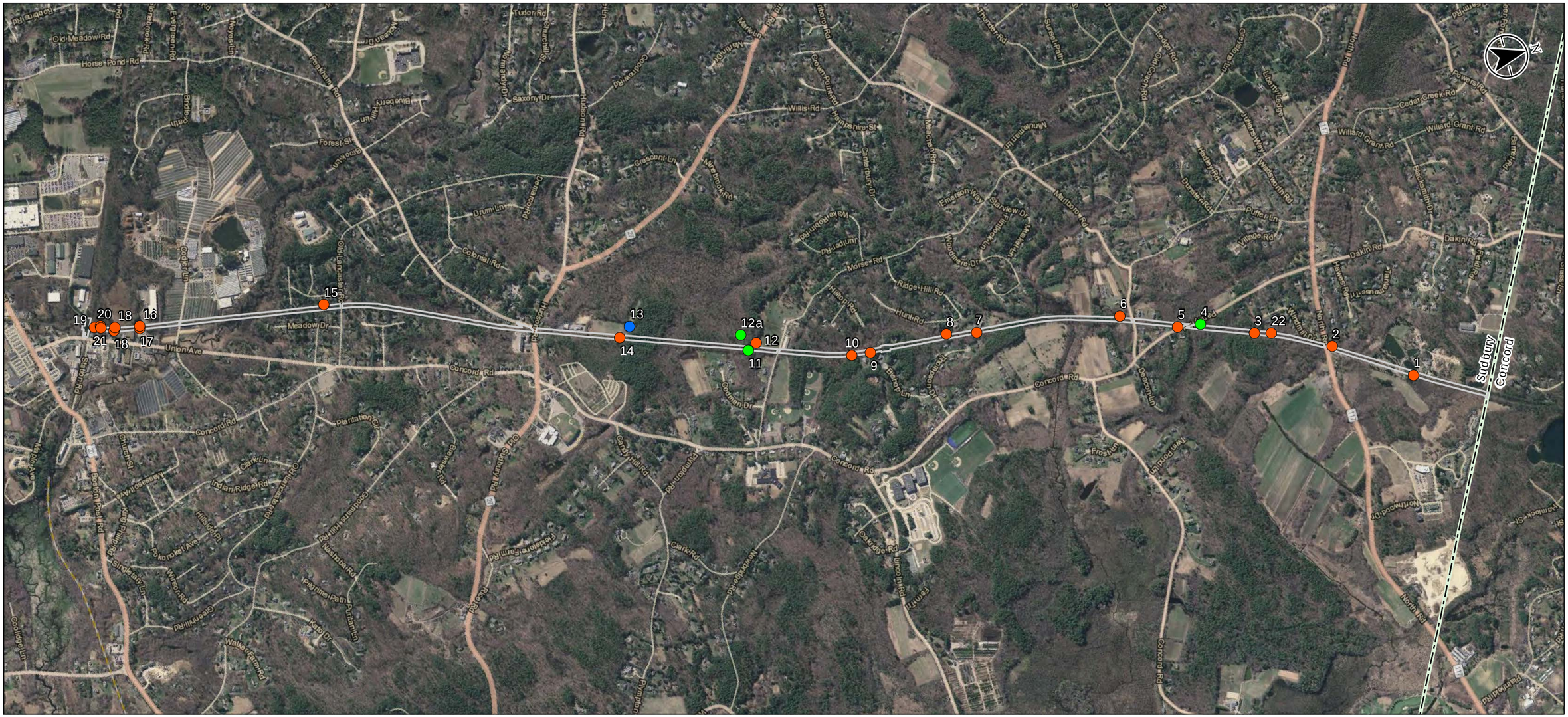
Low-Flow Statistics Citations

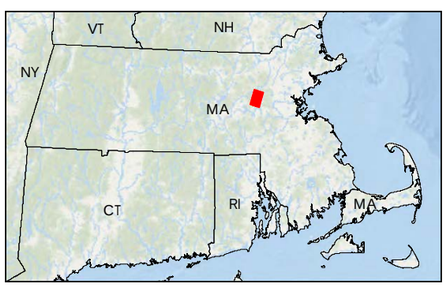
Application Version: 4.3.11

Attachment C

Vernal Pool Investigations

Prepared by VHB and Stantec





Notes
1. Coordinate System: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001
2. Orthoimagery: MassGIS 2013-2014 USGS Color Orthoimagery

Legend

Vernal Pool Location
- NHESP Certified Vernal Pool
- Eligible to be Certified by NHESP
- Not Eligible to be Certified by NHESP

Town Boundary

Subury Rail Trail

Data Sources
1. Vernal pools 1 - 19 were digitized from the Existing Conditions Survey Plan At Proposed Rail Trail in Sudbury Mass., prepared by Atlantic Engineering and Survey Consultants Inc., dated June 30, 2008.
2. Potential Vernal Pools 12a, 20 - 22 were located by Stantec on 4/17/2018 and 4/18/2018.
3. Sudbury Rail Trail provided by MassGIS Sudbury parcel data layer.

0 1,000 2,000 Feet

1:20,000 (At original document size of 11x17)

Stantec

Project Location
Sudbury, Massachusetts

179410498

Prepared by GC on 2018-05-01
Reviewed by DN on 2018-05-01

Client/Project
Sudbury Rail Trail

Figure No.
1

Title
2018 Potential Vernal Pool Survey

Table 1. Vernal Pool Survey Results: 2015, 2017 & 2018: Bruce Freeman Rail Trail, Sudbury, Massachusetts

2015	VHB		2017	VHB		2018	Stantec	
	Water Depth (in)	**Findings**		**Volume** (>200 cubic ft.)	**Findings**		**Water Depth** (in)	**Findings**
PVP 1	<1	No VP species found.	PVP 1	Yes	No VP species found.	PVP 1	2	No VP species found.
PVP 2	24-48	No VP species found.	PVP 2	Yes	No VP species found.	PVP 2	25	No VP species found.
PVP 3	2-3	No VP species found.	PVP 3	Yes	No VP species found.	PVP 3	8	No VP species found.
PVP 4	6-15	1 wood frog egg mass and 2 spotted salamander egg masses	PVP 4	Yes	12 wood frog egg masses, 100+ wood frog tadpoles, and 1 dead adult wood frog	PVP 4	12	Appx. 20 wood frog egg masses.
PVP 5	2-12	No VP species found. 1 predacious diving bettle observed.	PVP 5	No	No VP species found.	PVP 5	20	No VP species found.
PVP 6	2-6	No VP species found. Direct outlet to adjacent stream	PVP 6	Yes	No VP species found.	PVP 6	12	No VP species found. Pooled area in stream floodplain and fish observed.
PVP 7	6-8	No VP species found. Limited opportunity for egg mass attachment.	PVP 7	No	No VP species found.	PVP 7	11	No VP species found.
PVP 8	2-3	No VP species found. Water was flowing through area instead of ponding due to topography.	PVP 8	Yes	No VP species found. 1 adult green frog found.	PVP 8	0	No VP species found. Stream floodplain with no discernable pool boundary or pooled area.
SVP 9[1]	2-5	No VP species found.	SVP 9[1]	Yes	No VP species found.	SVP 9[1]	24	2 dead salamanders; lead phase of eastern red-backed salamander (NHESP confirmed species identification).
PVP 10	0	No VP species found. Area was dry at time of inspection.	PVP 10	No	No VP species found.	PVP 10	0	No VP species found; area dry at time of inspection.
PVP 11	10-12	8 spotted salamander egg masses. Appx. 5 small (4in) fish swimming near some of the egg masses.	PVP 11	Yes	1 dead adult wood frog.	PVP 11	11	20 mole salamander spermatophores.
PVP 12	12-24	No VP species found. Limited opportunity for egg mass attachment.	PVP 12	Yes	No VP species found. Limited opportunity for egg mass attachment (2015 results).	PVP 12	>12	Farm pond beyond fence noted in 2015 and 2017. Expected to be permanent wetland.
						PVP 12a[2, 4]	10	9 wood frog egg masses.
CVP 13[3]	5-24	15+ spotted salamander egg masses, 15+ blue spotted salamander egg masses, 10+ wood frog egg masses found.	CVP 13[3]	Yes	15+ spotted salamander egg masses, 15+ blue spotted salamander egg masses, 15+ fairy shrimp.	CVP 13[3]	>36	52 spotted salamander egg masses, 73 blue-spotted salamander egg masses, 72 wood frog egg masses, and fairy shrimp.
PVP 14	4-6	No VP species found.	PVP 14	Yes	1 dead adult blue spotted salamander found. No other VP species found.	PVP 14		No VP species found.
PVP 15	4-18	1 wood frog egg mass found. No other signs of VP species.	PVP 15	No	No VP species found. No water present at time of inspection.	PVP 15	18	No VP species found.
PVP 16	2-10	No VP species found (10 wood frog egg masses found on 4/22/15).	PVP 16	Yes	No VP species found.	PVP 16		No VP species found.
PVP 17	0-6	No VP species found. Oil sheen present throughout isolated wetland.	PVP 17	No	No VP species found.	PVP 17	24	1 wood frog egg mass.
PVP 18	0-12	No VP species found.	PVP 18	Yes	No VP species found.	PVP 18	32	Intermitttent spring peeper calls.
PVP 19	0	No VP species found. Area was dry at time of inspection.	PVP 19	Yes	No VP species found.	PVP 19	16	No VP species found.
						PVP 20[4]	6	1 adult gray treefrog.
						PVP 21[4]	16	No VP species found.
						PVP 22[4]	8	No VP species found.

Bold text were identified as eligible for NHESP certification.

Notes:

[1] Previously identified as Subdbury Vernal Pool.

[2] Potential Vernal Pool surveyed in 2018 and located south of the PVP 12 surveyed in 2015 and 2017.

[3] Previously Certified by NHESP.

[4] New Potential Vernal Pool identified in 2018.

General Wildlife Habitat Assessment Report

Bruce Freeman Rail Trail
Sudbury, Massachusetts

Wildlife Habitat Assessment Relative to the 25% Design Submittal dated November 2016

April 8, 2020

Prepared for:

Massachusetts Department of Transportation

Prepared by:

Stantec Consulting Services Inc.

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1.0 INTRODUCTION

On behalf of the Massachusetts Department of Transportation (MassDOT), Stantec Consulting Services Inc. (Stantec) performed a general wildlife habitat assessment for the proposed Bruce Freeman Rail Trial (BFRT; Project) located in Sudbury, Massachusetts, between the driveway to Chiswick Park off Union Avenue north to the Concord town line. The approximately 4.6-mile-long trail is proposed along the former Lowell Secondary Track of the Old Colony Rail Road that operated between Lowell and Framingham, Massachusetts (Figure 1). The right of way (ROW) is presently owned by MassDOT. In light of recent efforts in neighboring towns to rehabilitate the former railroad ROW as a rail trail, the Town of Sudbury (Town) is considering rehabilitation of the ROW in Sudbury to interconnect with trails in adjacent towns (Fay, Spofford, and Thorndike 2006).

The wildlife habitat assessment described herein considered the proposed impacts per 25% Design Submittal dated November 16, 2017, to wetland resource areas subject to the Massachusetts Wetlands Protection Act regulations (310 CMR; WPA) and relative to the guidance of the 2006 *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands* (Guidance)[1] developed by the Massachusetts Department of Environmental Protection (MassDEP). Stantec Certified Wildlife Biologists (CWB), Daniel Nein and Rodney Kelshaw, performed the wildlife habitat assessment following review and approval of professional qualifications by the Sudbury Conservation Commission.

The assessment included a desktop review of publicly available natural resource data, including Massachusetts Geographic Information Systems (MassGIS), prior to the field survey and a wildlife habitat field assessment conducted October 1–2, 2018. MassDOT Environmental Services staff participated in the field assessment on October 1, 2018.

2.0 METHODOLOGY

Methodology is described below for the data review and field survey associated with the general wildlife habitat assessment at the Project.

2.1 EXISTING DATA REVIEW

Stantec reviewed publicly available natural resource data from MassGIS to evaluate the potential presence or absence of resources and to identify specific areas of potential unique ecological value to target during the field assessment. The MassGIS data review included federal and state wetlands and waterways, open space, aerial photography, Areas of Critical Environmental Concern, Federal Emergency Management Agency (FEMA) flood zones, Coldwater Fisheries Resources, Massachusetts Natural Heritage and Endangered Species data, University of Massachusetts (UMass), and surface and wellhead drinking water supplies. The UMass Conservation Assessment and Prioritization System (CAPS) data for the Town was also reviewed. This wildlife habitat assessment also considered the results

[1] MassDEP. 2006 *Massachusetts Wildlife Habitat Protection Guidance for Inland Wetlands* is available at: http://umasscaps.org/pdf/wldhab.pdf.

of the previous wildlife habitat assessment performed by Call of the Wild Consulting in 2009 (Call of the Wild 2009) and vernal pool surveys performed by Stantec and other consultants between 2015 and 2018 (Stantec 2018), the results of which are summarized herein.

2.1.1 25% Design Submittal and Preliminary Resource Area Impacts

The existing data review also considered the 25% Design Submittal prepared by Vanasse Hangen Brustlin, Inc. (VHB) dated November 17, 2016 (Appendix A), and the associated wetland resource area impact tables for floodplain, Bordering Vegetated Wetland (BVW), and Bank dated September 25, 2017 (Appendix B).

2.2 FIELD ASSESSMENT

Following the completion of the existing data review, Stantec CWBs performed the field assessment along the full length of the proposed BFRT in Sudbury to evaluate general wildlife habitat and potential for Project adverse effect relative to the Guidance. The Guidance was referenced to determine each wetland resource area to assess, followed by a determination of the impact being above or below the "significance" threshold to identify the appropriate field data form (i.e., Guidance's Appendix A or B). The results of field form for each wetland resource area were used to assess whether or not the Project will adversely affect wildlife habitat.

Based on the preliminary wetland resource area impact calculations prepared by VHB (Appendix B) and our interpretation of the Guidance, Appendix A of the Guidance was used as the field data form when evaluating wetland resource areas where impact was proposed based on the 25% Design Submittal. Appendix A provides a simplified evaluation of small-scale alterations to ensure protection for certain "important habitat features" and identify projects that warrant detailed wildlife habitat evaluations (i.e., Appendix B of the Guidance). Appendix A also was deemed applicable based on the localized nature of proposed impacts based on the 25% Design Submittal. The following is a summary of the proposed wetland resource area impacts that triggered Appendix A of the Guidance.

- The Project proposes 4,681 square feet (sf; 3,670 sf temporary/1,011 sf permanent) of impact to BVW. Appendix A applies when impacts are below 5,000 sf to BVW.
- The Project proposes 1,752 linear ft (lf; 1705 lf temporary/47 lf permanent) of impact to Bank. Appendix A applies when impacts are above 50 lf to Bank.
- The Project proposes to fill approximately 3 cubic yards and cut approximately 73 cubic yards of floodplain/Bordering Land Subject to Flooding. The proposed impacts do not trigger Appendix A, but localized Bank habitat can be important to wildlife, so the wildlife habitat assessment evaluated where impact is proposed to this resource.
- Impacts to Previously Developed Riverfront Areas does not require a wildlife habitat assessment per the Guidance; however, Riverfront can be important to wildlife, so the wildlife habitat assessment considered these areas associated with Hop Brook, the unnamed tributary to Hop Brook, and Pantry Brook.

Stantec assessed the ROW for the following important habitat features outlined in Appendix A of the Guidance:

- Habitat for state-listed species
- Sphagnum hummocks and pools suitable as nesting habitat for four-toed salamanders
- Trees with large cavities (>18" diameter at entrance)
- Existing beaver, mink, or otter dens
- Areas within 100 feet of existing beaver, mink or otter dens
- Existing nest trees for birds that traditionally reuse nests (bald eagle, osprey, great blue heron)
- Land containing freshwater mussel beds
- Wetland and waterbodies know to contain open water in winter that may serve as waterfowl winter habitat
- Turtle nesting areas
- Vertical sandy banks (bank swallows, rough-winged swallows or kingfishers)

In addition to the above habitat features, the Guidance identifies the following habitat characteristics to evaluate when not commonly encountered in the surrounding area:

- stream bed riffle zones,
- springs,
- gravel stream bottoms (trout and salmon nesting substrate,
- plunge pools (deep holes) in rivers or streams, and;
- medium to large, flat rock substrates in streams.

The activities identified in Appendix A of the Guidance, if proposed within resources areas, that would trigger a detailed wildlife habitat evaluation include:

- Activities located in mapped "Habitat of Potential Regional or Statewide Importance"
- Activities affecting certified or documented vernal pool habitat, including habitat within 100 feet of a certified or documented vernal pool when within another jurisdictional resource area
- Activities in Bank, Land Under Water, Bordering Land Subject to Flooding (presumed significant) where alterations are more than twice the size of thresholds
- Activities affecting vegetated wetlands >5000 sf occurring in source areas other than Bordering Vegetated Wetland
- Activities affecting the sole connecter between habitats >50 acres in size

- Installation of structures that prevent animal movement
- Activities for the purpose of bank stabilization using hard structure solutions that significantly affect ability of stream channel to shift and meander, or disrupt continuity in cover that would inhibit animal passage, and
- Dredging (>5,000 sf)

The evaluation not only considered Appendix A of the Guidance but additional evidence of wildlife use and potential wildlife habitat not identified on Appendix A and general design recommendations that would avoid, minimize, and mitigate impacts, where deemed applicable, to general wildlife habitat interests protected under the WPA.

3.0 RESULTS

The results of the existing data review and field assessment at the Project are presented below.

3.1 EXISTING DATA REVIEW

The BFRT is proposed along an existing ROW in a suburb of Greater Boston where adjacent primary land uses include residential, commercial / industrial, and open space available for conservation and recreation. Several of these larger open space parcels are owned by the Town and occur near the northern extent of the Project. Commercial / industrial uses primarily occur in the southern extent of the ROW, located south of Codjer Lane and near the Hudson Road (Route 27) and North Road (Route 117) road crossings. The ROW crosses several perennial or intermittent waterways, including Hop Brook and Pantry Brook. We understand the determination of whether a stream is perennial or not may be ongoing and is being performed by others. Wetland areas are present in lower lying areas along the ROW, some of which are associated with riparian areas.

Table 1 below summarizes the natural resource desktop data review and identifies resources within, or immediately adjacent to, the ROW. It is noteworthy that unique ecological communities and high value wildlife habitat requiring regulatory review are not present within or proximal to the Project; these include:

- Critical Habitat for federally listed species,
- Priority or Estimated Habitat for state-listed species or BioMap2 Critical Natural Landscape, or
- Area of Critical Environmental Concern.

Table 1. Existing Natural Resource Data Review, Bruce Freeman Rail Trail, Sudbury, Massachusetts

Resource Type Within or Immediately Adjacent* to Project	Yes	No
NHESP BioMap2 Core Habitat Core Habitat 1920 (mapped for Species of Conservation Concern)	X	
NHESP Critical Natural Landscape		X
NHESP Priority/Estimated Habitat for state listed species		X
NHESP Potential Vernal Pool (8 PVPs) PVPs 24213, 24206, 24192, 24191, 24159, 24158, 24157, 24155	X	
NHESP Certified Vernal Pool CVP 1428 between Route 27 & Morse Road CVP 2504 between Route 27 & Old Lancaster Road	X	
NHESP Natural Community		X
Area of Critical Environmental Concern		X
Critical Habitat for federally listed species		X
UMass CAPS Habitat of Potential Regional or Statewide Significance	X	
MassWildlife Coldwater Fisheries Resource Hop Brook Unnamed Tributary to Hop Brook	X	
Protected Open Space	X	
MassDEP wetlands	X	
Bicycle Trails	X	
Surface Water Protection Area (Zone A, B, or C)		X
Zone II Wellhead Protection Area	X	
Interim Wellhead Protection Area		X
FEMA National Flood Hazard Area	X	

Notes:
Data is derived from MassGIS with the exception of CAPS data from UMass and Critical Habitat data from USFWS.
* For the purposes of the data review, immediately adjacent is considered as present within 500 feet of the Project ROW.

BioMap2 Core Habitat[2] (for Species of Conservation Concern) as mapped by the NHESP occurs between Hudson Road (Route 27) and Morse Road (Figure 2a). The Project is not mapped as BioMap2 Critical Natural Landscape, which can overlap with BioMap2 Core Habitat. BioMap2 is intended as a strategic conservation planning tool designed by the by the Massachusetts Department of Fish and Game and Massachusetts Nature Conservancy in 2010 to guide strategic biodiversity conservation to focus land protection and stewardship on areas most critical for ensuring long-term persistence of rare and native species and their habitats, exemplary natural communities, and a diversity of ecosystems and includes

[2] BioMap2 Core Habitat consists of 1,242,000 acres that are critical for the long-term persistence of rare species and other Species of Conservation Concern, as well as a wide diversity of natural communities and intact ecosystems across the Commonwealth. It includes habitats of rare, vulnerable or uncommon species; Priority Natural Communities; high quality wetland, vernal pool, aquatic, and coastal habitats; and intact forest ecosystems.

the habitats and species of conservation concern identified in the State Wildlife Action Plan. When the NHESP updated Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife mapping in 2017 for the 14th Edition of the Natural Heritage Atlas, which are regulatory maps used for review under Massachusetts Endangered Species Act (MESA and WPA, respectively), the Project was not mapped within or proximal to either habitat. It is possible that the BioMap2 Core Habitat from 2010 overlapping the Project was due to the inclusion of NHESP Priority Habitat mapping that predated the 14th Edition of the Natural Heritage Atlas.

Two generally small areas, which are adjacent to but not within the Project, have been modeled by the UMass Conservation and Assessment Prioritization System (CAPS) [3] and are mapped as Habitat of Potential Regional or Statewide Importance[4]. The first is the existing CVP noted above and surrounding forest immediately west of the ROW between Hudson Road and Morse Road, and second is small open water wetland/PVP and shoreline area immediately west of the ROW near the Sudbury-Concord town line (Figure 2a). When areas modeled by CAPS occur within jurisdiction of the WPA, they are subject to the Guidance.

Hop Brook and an unnamed tributary to Hop Brook are designated as Coldwater Fisheries Resources by Massachusetts Division of Fisheries and Wildlife (MassWildlife) (Figure 2b). Wellhead Protection Areas, Zone IIs, occur at the northern and southern extents of the ROW (Figure 2b). The nearest Surface Water Protection Areas associated with Cambridge Reservoir and surrounding waterbodies of the Charles River Watershed are located in the adjacent towns of Lincoln, Weston, and Waltham. FEMA Floodzones can be generally associated with low-lying areas at waterway crossings and wetlands.

There are two National Wildlife Refuges (NWR) (2,480 acres), one state Wildlife Management Area (WMA, 411 acres), two State Forests (~1,630 acres), one municipal state forest (289 acres) and multiple other open space parcels located within 5 miles of the Project. The boundaries of the Pantry Brook State Park WMA and Great Meadows NWR are located approximately 1,100 feet and 2,100 feet east of the ROW, respectively (Figure 2c). The boundary of the Marlborough-Sudbury State Forest, Callahan State Forest, Memorial Forest, and Assabet River NWR are located approximately 2 miles west or southwest of the ROW. Non-federal or state protected open space within a mile of the ROW includes Mineway Brook Corridor, Brues Woods, Gray Reservation, and Emmons Conservation Restriction (Figure 2c). Using data publicly available through MassGIS, greater than 30% and more than 25,000 acres of the land area within a 5-mile buffer of the ROW is currently protected open space.

Mapped vernal pool habitat (Potential or Certified Vernal Pools, PVP and CVP, respectively) are present in low density and scattered along and generally proximal to the ROW. At a landscape scale, vernal pools are more common in other parts of Sudbury and nearby towns. Several PVPs are generally present in the northern extent of the ROW and two CVPs have been identified in the southern extent of the ROW (Figure 2a). Under WPA, vernal pool habitat protection includes the vernal pool and the 100-foot zone around the vernal pool when located within a wetland resource area.

[3] CAPS is an ecosystem-based (coarse-filter) approach for assessing the ecological integrity of lands and waters and subsequently identifying and prioritizing land for habitat and biodiversity conservation.
[4] Areas representing the 40% of the landscape with the highest potential wildlife habitat value as measured by CAPS, and applicable to the MassDEP Guidance when within the jurisdiction of WPA.

The ROW is mapped as a Bicycle Trail, which is a MassGIS data layer representing trails where bicycles are a permitted use and corridors with conversion potential. The mapping in Sudbury connects with the Bicycle Trail mapping in adjacent towns of Concord and Framingham. The Massachusetts Department of Conservation and Recreation created this data layer for the purpose of regional planning and mapping.

Call of the Wild Consulting performed a wildlife habitat assessment between 2007 and 2008 in response to the Town's request for a comprehensive four-season wildlife habitat assessment (Call of the Wild 2009). Wildlife habitat assessment results, evidence of species use, and recommendations were provided in 2009.

3.2 FIELD ASSESSMENT RESULTS

A two-day field survey was conducted on October 1–2, 2018 to evaluate general wildlife habitat conditions, wildlife use, and direct observations of wildlife species within and near delineated wetland resource areas within the ROW that may be adversely affected by the Project. MassDOT Environmental Services staff participated in the field assessment on October 1, 2018. Stantec's wildlife habitat assessment was subsequent to the wetland delineation conducted by VHB in 2015-2016 that supported development of the 25% Project Design Submittal. This evaluation is based on the 25% Project Design Submittal and proposed impacts at this early stage should continue to be evaluated as the Project design advances in an effort to further avoid and minimize the possibility of adverse effect to not only general wildlife habitat, but the other interests protected under the WPA.

As noted in Section 3.1, the ROW traverses a suburban setting with adjacent areas of protected open space, past/current agricultural use, and commercial/industrial businesses. Representative and dominant ecological communities which were observed adjacent to the ROW included variants of the Mixed Oak Forest/Woodland, White Pine-Oak Forest, and Red Maple Swamp as described in the *Classification of Natural Communities of Massachusetts* (Swain 2016). These communities are widespread and considered common and secure in Massachusetts. The encroachment of commercial and residential land uses within the ROW has occurred over time. The ROW is approximately 65 feet wide for most of its length and is predominantly a wooded corridor passing through multiple wetland areas, including vegetated wetlands, perennial/intermittent streams, and associated floodplain. Wetland areas are previously disturbed or presumed to be an artifact or, at a minimum, influenced hydrologically by the original ROW construction. The vegetated wetlands where temporary or permanent impacts are proposed generally occur at the toe of slope or near the edge of the rail bed. A further description of the wetland resource areas can be found in the VHB wetland report.

Within the ROW, the existing railbed (i.e., the earthen area containing the tracks and ties), is of variable width as a result of adjacent cut and fill slopes among other variables. The track, wooden ties, and ballast are visible along the ground surface over much of the ROW. A buildup of a shallow duff and/or soil layer over areas of ballast has occurred over time, allowing the colonization of some rooted native species; however, the dominant species are predominately invasive plant species within the ROW. It can be inferred that the initial construction of the rail bed involved the use of off-site and on-site fill material, which may have created depressions or lower lying areas and additionally caused soil compaction.

Portions of the ROW less frequented by pedestrian foot traffic in the northern section are heavily overgrown with dense shrubbery and vines. Overall, invasive species are common throughout, including: glossy buckthorn (*Frangula alnus*), Oriental bittersweet (*Celastrus orbiculatus*), and honeysuckle (*Lonicera spp.*), with occasional occurrences of winged euonymus (*Euonymus alatus*) and Japanese barberry (*Berberis thunbergii*), and with common reed (*Phragmites australis*) frequent in wetland resource areas.

3.2.1 Wildlife Observations

The mosaic of the wooded corridor interfacing with seasonal and permanent wetlands and small waterways represents habitat for a variety of wildlife species and their uses (e.g., foraging, breeding, shelter, nesting), including representative and regionally common species expected for a suburban or urban area. However, less common or rare species are also documented from nearby state WMAs and NWFs and possibly other open space or protected areas noted in section 3.1. For example, Blanding's turtle (*Emydoidea blandingii*), state-listed and candidate for federal listing, and spotted turtle (*Clemmys guttata*), previously state-listed, are known inhabitants at Great Meadows NWF. The closest NHESP documented occurrence of a state-listed rare species to the Project is blue-spotted salamander (*Ambystoma laterale*) observed at the previously certified CVP 1428 located just beyond 100 feet west of station 336+00, which is further described below in the Vernal Pool Survey section as CVP #13. Direct observations of wildlife species presence within the ROW primarily included common or generalist species typical of a suburban and forested landscape such as the conditions present at the Project and those in areas of eastern Massachusetts and the region. No state-listed or federally listed species were observed within the ROW during the assessment.

Mammals

Evidence of the wildlife species at the Project in part included mammals such as white-tailed deer (*Odocoileus virginianus)*, coyote (*Canis latrans*), raccoon (*Procyon lotor*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), and red squirrel (*Tamiasciurus hudsonicus*). Open portions of the ROW provide ease of travel for mammalian species, while overgrown areas provide cover or shelter in addition to functioning as a potential travel corridor.

Evidence of prior beaver (*Castor canadensis*) activity (>5 years) within the ROW was noted in three areas and included stumps of hardwood species with evidence of beaver chew near the existing Hop Brook crossing. Inactive heavily deteriorated bank dens in the embankment close to the toe of slope at stations 264+00 near Pantry Brook and 477+00 near the open wetland modeled by CAPS were likely historically used by beaver or possibly river otter (*Lontra canadensis*). Within the ROW, including areas of proposed wetland impact, there were no observations of evidence of recent or current use by beaver, American mink (*Neovison vison*), or river otter. Riparian and open water habitat that would be considered suitable to support these species is limited at the Project, with the most likely exception of Hop Brook and Pantry Brook.

The presence of small mammal populations and additional larger mammals such as grey fox (*Urocyon cinereoargenteus*), raccoon, and other species using the ROW and adjacent areas, as reported by the Call of the Wild 2009, is anticipated given available suitable habitat to support these species.

A potential bat roost tree was identified near station 171+30 where an impact is proposed within a wetland resource area; however, potential roost trees were observed beyond the ROW and broader potential bat roost habitat, including mature trees, is expected to be common on the landscape. The spread of White Nose Syndrome has detrimentally impacted bat populations in the northeast United States.

Birds

Representative avian species such as red-tailed hawk (*Buteo jamaicensis*), American crow (*Corvus brachyrhynchos*), blue jay (*Cyanocitta cristata*), turkey (*Meleagris gallopavo*), black-capped chickadee (*Penthestes atricapillus*), gray catbird (*Dumetella carolinensis*), nuthatches (*Sitta* sp.), and several woodpeckers (*Picoides* sp.) were also observed at the Project. A pair of mallard ducks (*Anas plathrhynchos*) were observed in the open water wetland near the Sudbury/Concord town line. This area was modeled by CAPS and represents a small open water habitat for waterfowl and other bird species that is anticipated to freeze annually during winter months, unlike other larger open water habitats less likely to freeze in nearby WMAs and NWFs. Additional avian species anticipated to use the ROW and adjacent landscape include neotropical migrants and resident species typical of suburban forested and partially fragmented landscapes. The ROW provides an open corridor for avian travel and foraging, while overgrown areas provide increased cover, shelter, and nesting habitat, although these habitats are primarily located outside of jurisdictional areas. These types of habitats are not limited to the ROW and are expected to be abundant in the surrounding landscape.

Fisheries and Mussels

Hop Brook and an unnamed tributary to Hop Brook are designated as Coldwater Fisheries Resources by MassWildlife. Attributes of Coldwater Fisheries Resources include high water quality, natural flow regimes, cold water temperatures (less than 68°F), largely intact riparian area, and watershed connectivity. Hop Brook, the unnamed tributary to Hop Brook and additional potential perennial and intermittent streams were evaluated for the presence of fisheries and mussel habitat, including the habitat features and considerations identified in Appendix A.

The in-stream conditions at the existing Hop Brook crossing and nearby unnamed tributary to Hop Brook indicate a perennial condition with a sand and sparse gravel streambed with moderate shoreline and submerged aquatic vegetation. Habitat conditions are anticipated to support coldwater species where the ROW crosses these waterways. Species such as brook trout (*Salvelinus fontinalis*), dace (*Rhinichthys* spp.), and white suckers (*Catostomus commersonii*) may be present in small densities and are examples of species that would need to be documented to designate the waterway as a Coldwater Fisheries Resource by MassWildlife.

In-stream conditions at the Pantry Brook crossing include a higher percentage of muck/organic material in the substrate. Water quality is not expected to be as high in this area compared to Hop Brook and high water quality is needed to support coldwater species; however, habitat could support some warmwater species.

Conditions at and near each perennial waterway crossing did not appear suitable (e.g., substrate, depth) for mussel beds, nor was there evidence of the predation of mussels, such as empty shells, which is also an indication of species presence.

There is the potential for mussel beds, and plunge pools and gravel dominated substrates suitable for fish spawning to be present further up or downstream of the areas assessed for the Project. The designation of Coldwater Fisheries Resources for waterways at the Project indicates suitable conditions are present for coldwater fish species, which might also be suitable for some mussel species.

Vernal Pool Species

A vernal pool survey at the Project was conducted by Stantec in April 2018 (Stantec 2018) and evaluated eligibility under the NHESP 2009 *Guidelines for the Certification of Vernal Pool Habitat* and the Sudbury Wetlands Administration Bylaw Regulations (Bylaw) revised September 25, 2017. The results of the 2018 survey identified three vernal pools eligible for NHESP certification (PVP 4, PVP 11, and PVP 12a). CVP 13[5] continues to meet NHESP certification requirements, and PVP 9[6], PVP 17, and PVP 20 may meet criteria as a vernal pool under the Town's Bylaw. Amphibian species observed during the spring survey included: wood frog (*Lithobates sylvaticus*), spotted salamander (*Ambystoma maculatum*), red-backed salamander *(Plethodon cinereus)*, gray treefrog (*Hyla versicolor*), blue-spotted salamander (CVP 13; NHESP CVP# 1428), and spring peeper (*Pseudacris crucifer*).

There was no evidence of turtle nesting (i.e., shell fragments or nests excavated by mammals) or measurable areas of suitable turtle nesting habitat with the ROW or immediate vicinity observed during the 2018 vernal pool survey or wildlife habitat assessment.

4.0 EVALUATION OF ADVERSE EFFECT

The results of the data review and the results of the field survey were used to assess whether or not the Project will result in an adverse effect to wildlife habitat subject to the WPA. None of the important habitat features or other thresholds identified in Appendix A of the MassDEP guidance were observed within or proximal to wetland resource areas where temporary or permanent Project impacts are proposed. Additionally, no other high value habitats or species particularly sensitive to the construction of a rail trail were observed. The trail is not expected to be a barrier to wildlife usage patterns near the Project or at the landscape level, as most species would shift habitat usage patterns, as needed, to carry out their life cycles during construction and post-construction. Therefore, potential habitat impact within jurisdiction of the WPA is generally localized, temporary, occurring previously disturbed area, and would occur to habitat that is not considered critical; or limiting at the Project or the local landscape. As a result, no adverse effect to wildlife habitat within wetland resource areas is anticipated based on the 25% Design

[5] Obligate vernal pools species observed in 2018 included fairy shrimp (*Eubranchipus* spp.) and blue-spotted salamander (*Ambystoma laterale*) egg masses.
[6] The NHESP confirmed Stantec's 2018 identification of two dead salamanders as the lead phase for eastern red-backed salamander.

Submittal. As the Project design develops further, recommendations are provided below for consideration in consultation with the Sudbury Conservation Commission and other resource agencies, as appropriate.

5.0 ADDITIONAL DESIGN CONSIDERATIONS AND RECOMMENDATIONS

The following additional recommendations relative to the protection of wildlife habitat should be considered as Project planning and design continues.

1. Locate the Project limit of disturbance within existing ROW to the greatest extent practical, including staging areas, construction access, parking, and scenic vistas.

2. Avoid or minimize tree clearing where possible. For example, the forested habitat surrounding high value or productive vernal pools (e.g., certified or certifiable by NHESP), particularly the 100-foot zone surrounding the boundary of the pool breeding habitat.

3. Implement Best Management Practices (BMPs) to avoid/minimize potential impacts to wetland resources areas that support wildlife habitat. For example, avoidance and minimization of erosion and sedimentation into wetland resource areas, use of clean heavy machinery at Project to limit/avoid introduction of invasive non-native plant species, avoidance of machinery refueling in buffer zones, and general housekeeping (including final site cleanup).

4. Establish a robust erosion and sedimentation control program per MassDEP Erosion and Sedimentation Control Guidelines and guidance from the Sudbury Conservation Commission, including monitoring and timely maintenance throughout construction due to the proximity of limits of work near some wetland resource areas.

5. Use plantings and seed from native plant species during restoration of disturbed areas. The selection of species for plantings should consider enhancing or replacing wildlife habitat use (e.g., fruiting shrubs, pollinator habitat, evergreen species for cover, etc.).

6. Incorporate minimum Massachusetts Stream Crossing Standards at perennial waterway crossings to the maximum extent practical. Consider these standards in additional areas that may provide high value wildlife habitat (e.g., intermittent stream). In the case of Hop Brook, the reuse/rehabilitation of the existing bridge to span the brook is being considered for the design.

7. Consider maintaining or creating wildlife crossing passage at strategic locations underneath the trail (e.g., existing cattle crossing used by wildlife, new crossing where amphibians migrate from the forest to high value vernal pools close to the ROW).

8. If scenic vistas or additional parking are proposed, cite these in areas that avoid and minimize the potential impact to wildlife habitat and wildlife behavior.

9. Monitoring of Priority and Estimated Habitat mapping by the NHESP for the potential presence of state-listed species near or at the Project as environmental permitting continues.

10. Avoid or minimize installation of physical barriers that would create impassable conditions across the trail for some smaller wildlife species.

11. Consider leash and waste clean-up rules for pets at the Project.

12. Strategically girdling trees (e.g., cottonwood) that are located a safe distance from the ROW (to avoid creating hazard tree to humans). This management practice would increase the number of standing dead trees that could offer natural cavities and crevices for wildlife (e.g., roosting bats, nesting birds and waterfowl, small mammal dens).

13. Beneficially reuse trees and brush cleared during on-site site preparation to create new or enhance existing brush piles near the ROW to serve as wildlife habitat (e.g., refugia for small mammals, amphibians, and reptiles; and nesting habitat for songbirds).

14. Avoid and minimize effects of temporary construction and permanent lighting to the maximum extent practical to minimize the potential for the disruption of wildlife behavior. If permanent lighting is proposed, use full cutoff lens to direct lighting downward toward the trail surface to avoid and minimize the secondary effect to adjacent wildlife habitat.

15. Consider strategically locating signage along the trail (e.g., trail heads or parking areas) to educate trial users about wildlife and wetland ecology.

6.0 REFERENCES

Call of The Wild Consulting. 2009. Comprehensive Four-Season Wildlife Habitat Evaluation Phase II Bruce Freeman Rail Trail Project. Prepared for Sudbury Conservation Commission.

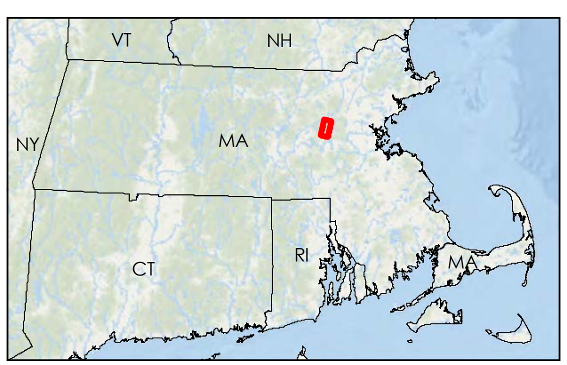
Fay, Spofford, & Thorndike, 2006. Bruce Freeman Rail Trail Environmental & Engineering Assessment. Prepared for Town of Sudbury, Massachusetts.

Massachusetts Office of Geographic Information. Massachusetts Online Viewer (Oliver). Available at http://maps.massgis.state.ma.us/map_ol/oliver.php.

Stantec Consulting Services Inc. (Stantec). 2018. Bruce Freeman Rail Trail Vernal Pool Survey. Prepared for Massachusetts Department of Transportation. Dated May 14, 2018.

Swain, P. 2016. Classification of the Natural Communities of Massachusetts. Version 2.0. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Westborough, Massachusetts.

FIGURES



Legend
- Bruce Freeman Rail Trail
- Town Boundary

Notes
1. Coordinate System: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001
2. Data Sources: Administrative boundaries provided by Bureau of Geographic Information (MassGIS). Bruce Freeman Rail Trail provided by MassGIS Sudbury parcel data layer.
3. Background: Orthoimagery: MassGIS 2013-2014 USGS Color Orthoimagery

0 2,000 4,000 Feet
(At original document size of 11x17)
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N

Stantec

Project Location
Sudbury, Massachusetts

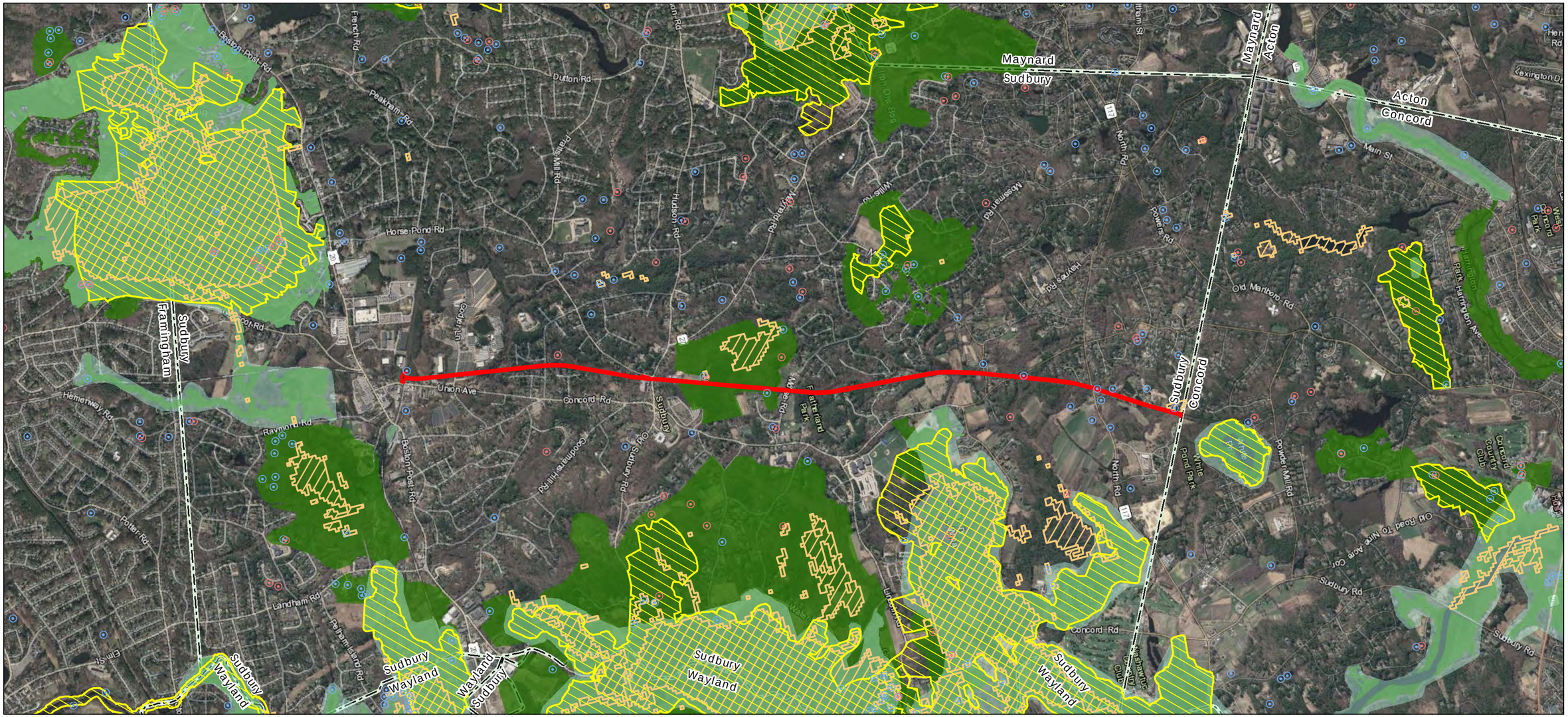
Prepared by REM on 2019-02-20
IR Review by DGN on 2019-02-21

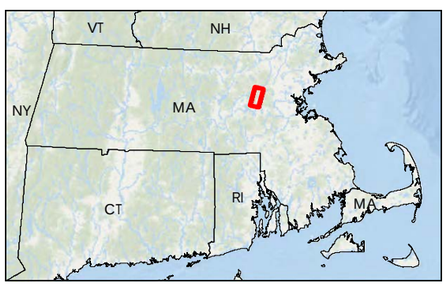
Client/Project 179410498
MassDOT
Bruce Freeman Rail Trail
Sudbury, MA

Figure No.
1

Title
Project Location Map

\\us1241-f01\workgroup\1956\active_Task Owner and other Non-BC1956 Jobs\179410498\03_data\gis_cad\gis\MXDs\SudburyRailTrail_WildlifeHabitatReport\179410498_01_Location.mxd Revised: 2019-04-17 By: rmack





Legend

- Bruce Freeman Rail Trail
- NHESP Potential Vernal Pools
- NHESP Certified Vernal Pools
- NHESP Priority Habitats of Rare Species (August 2017)
- UMass CAPS Habitat of Potential Statewide or Regional Importance
- BioMap2 Core Habitat
- BioMap2 Critical Natural Landscape
- Town Boundary

0 3,000 6,000
Feet

(At original document size of 11x17)
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Notes

1. Coordinate System: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001
2. Data Sources: Administrative boundaries, NHESP data, and BioMap2 habitat and landscape data provided by Bureau of Geographic Information (MassGIS). CAPS habitat data provided by UMass. Bruce Freeman Rail Trail provided by MassGIS Sudbury parcel data layer.
3. Background: Orthoimagery: MassGIS 2013-2014 USGS Color Orthoimagery

Stantec

Project Location
Sudbury, Massachusetts

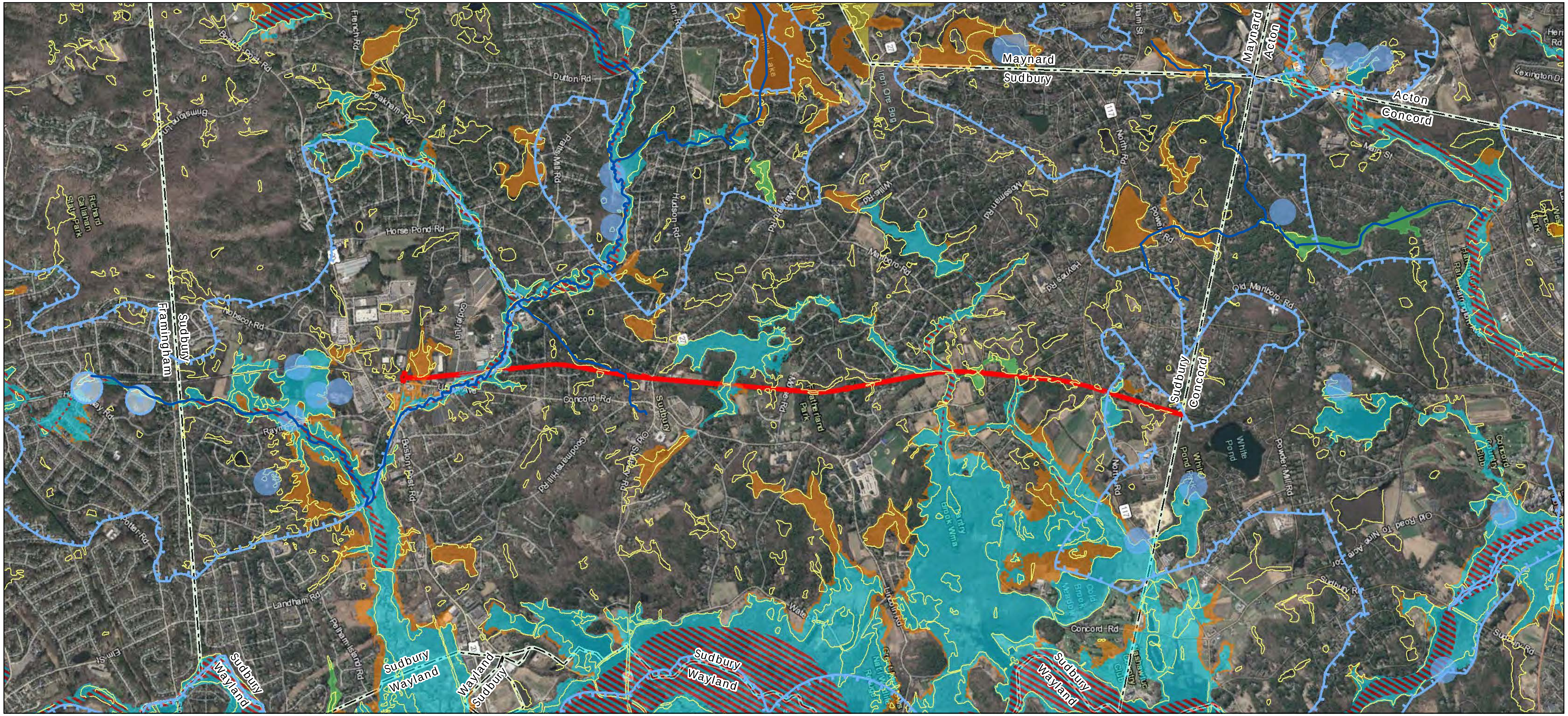
Prepared by REM on 2019-02-20
IR Review by DGN on 2019-02-21

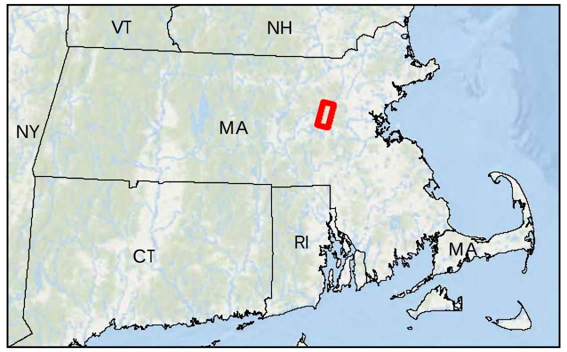
Client/Project
MassDOT
Bruce Freeman Rail Trail
Sudbury, MA

179410498

Figure No.
2a

Title
Natural Resources Data Review
National Heritage Resources





Legend

Bruce Freeman Rail Trail
Apparent Wetland Limit (DEP)
DFW Coldwater Fisheries Resources

FEMA National Flood Hazard Layer
A: 1% Annual Chance of Flooding, no BFE
AE: 1% Annual Chance of Flooding, with BFE
AE: Regulatory Floodway
D: Possible But Undetermined Hazard
X: 0.2% Annual Chance of Flooding

Surface Water Protection Areas
Zone A
Zone B
Zone C

Wellhead Protection Area
IWPAs
Zone Is
Zone IIs
Town Boundary

0 3,000 6,000
Feet
(At original document size of 11x17)
1:36,000

N

Notes
1. Coordinate System: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001
2. Data Sources: DFW coldwater fisheries resources, WPAs, DEP apparent wetland limit, SWPAs, FEMA National Flood Hazard layer, and administrative boundaries provided by Bureau of Geographic Information (MassGIS). Bruce Freeman Rail Trail provided by MassGIS Sudbury parcel data layer.
3. Background: Orthoimagery: MassGIS 2013-2014 USGS Color Orthoimagery

Stantec

Project Location
Sudbury, Massachusetts

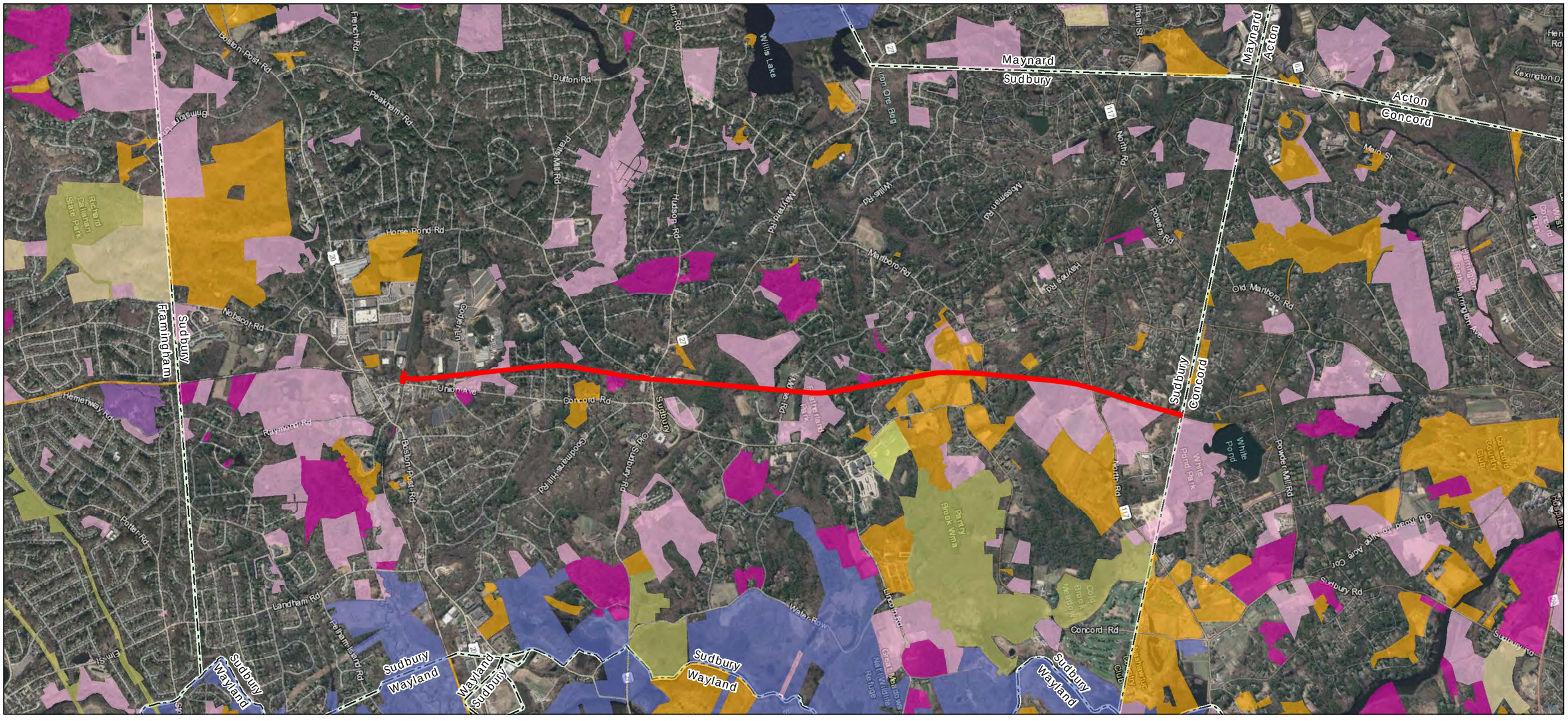
Prepared by REM on 2019-02-20
IR Review by DGN on 2019-02-21

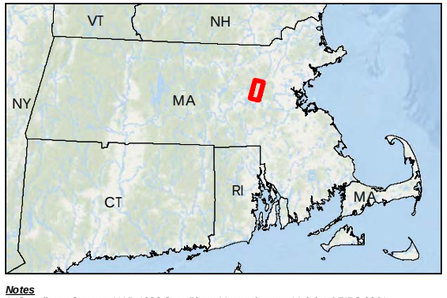
Client/Project
179410498
MassDOT
Bruce Freeman Rail Trail
Sudbury, MA

Figure No.
2b

Title
Natural Resources Data Review
MassDEP Resources and FEMA National Flood Hazard

\\us1241-f01\workgroup\1956\active_Task Owner and other Non-BC1956 Jobs\179410498\03_data\gis_cad\gis\MXDs\SudburyRailTrail_WildlifeHabitatReport\179410498_02b_NaturalResourceReview.mxd Revised: 2019-04-17 By: rmack





Legend

- Bruce Freeman Rail Trail
- Town Boundary

Protected and Recreational OpenSpace

- Conservation Organization
- Federal
- Land Trust
- Municipal
- Other
- Private
- Private Non-Profit
- State

Notes

1. Coordinate System: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001
2. Data Sources: Protected and recreational open space and administrative boundaries provided by Bureau of Geographic Information (MassGIS). Bruce Freeman Rail Trail provided by MassGIS Sudbury parcel data layer.
3. Background: Orthoimagery: MassGIS 2013-2014 USGS Color Orthoimagery

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Stantec

Project Location
Sudbury, Massachusetts

Prepared by REM on 2019-02-20
IR Review by DGN on 2019-02-21

Client/Project 179410498
MassDOT
Bruce Freeman Rail Trail
Sudbury, MA

Figure No.
2c

Title
Natural Resources Data Review
Open Space

APPENDICES

Appendix A 25% DESIGN SUBMITTAL

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

BRUCE FREEMAN RAIL TRAIL

IN THE CITY/TOWN OF

SUDBURY

MIDDLESEX COUNTY

FEDERAL AID PROJECT NO.

25% SUBMITTAL

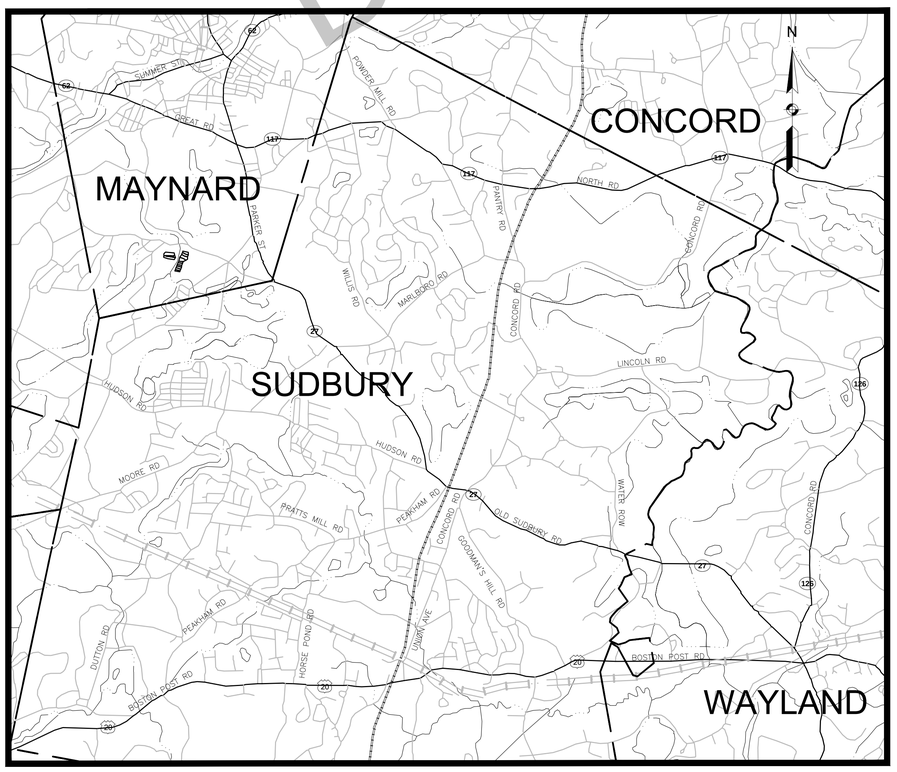
SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	01	XX
PROJECT FILE NO.	608164		

TITLE SHEET & INDEX

608164_HDI(COV).DWG Plotted on 16-Nov-2016 7:44 PM

INDEX



0 100 200 300 400

SCALE: 1" = 100'

LENGTH OF PROJECT = XXX.XX FEET = X.XXX MILES

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE 2014 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

DESIGN DESIGNATION (STREET/RTE # OR NAME)

DESIGN SPEED	XX MPH
ADT (YYYY)	X,XXX
ADT (YYYY)	X,XXX
K	X%
D	XX%
T (PEAK HOUR)	X.X%
T (AVERAGE DAY)	X.X%
DHV	XXX
DDHV	XXX
FUNCTIONAL CLASSIFICATION	XXXXXXXXXX

Preliminary Design
DRAFT
November 17, 2016

DATE	DESCRIPTION	REV #

massDOT
Massachusetts Department of Transportation
Highway Division

RECOMMENDED FOR APPROVAL

CHIEF ENGINEER _____ DATE _____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR _____ DATE _____

APPROVED

HIGHWAY ADMINISTRATOR _____ DATE _____

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	05	XX
PROJECT FILE NO. 608164			

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:41 PM

N/F
E B REALTY LLC
0 UNION AVE
K08-0057
BOOK 52138 PAGE 522

N/F
E B REALTY LLC
0 UNION AVE
K08-0057
BOOK 52138 PAGE 522

N/F
MCCARTHY LAURA B ET AL TRUSTEE S
0 UNION AVE
K08-0055
BOOK 26825 PAGE 536

N/F
CSX
0 RAILWAY
K08-5200

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

PROP 3' SHLD

PROP 10' SUP

CONST ℄

N 21° 42' 10" E 164.78

PC +64.78

+34

PT +11.69

R=2865.00'
L=646.91'
T=324.84'

CONCRETE BOUND W/DRILL HOLE

RAILROAD TRACKS

WOOD WALL

EDGE PVMT

TENT

BIT PARKING

2 STORY
WOOD FRAME BUILDING
"THE PERFORMING ARTS CONNECTION"

DEBRIS PILE

DSK # 38F

EXISTING 4"GAS

EX OHW

UPL

SINGLE RAIL

METAL POST

WOOD POST

MW

WF#36-98
WF#36-99
WF#36-100
WF#36-101
WF#36-102
WF#36-104
WF#36-105
WF#36-106
WF#36-107
WF#36-108
WF#36-109
WF#36-110
WF#36-200
WF#36-201
WF#36-202
WF#36-203
WF#36-204
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WF#36-206
WF#36-207
WF#36-208
WF#36-209
WF#36-210

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0 20 50 100
SCALE: 1" = 20'

N/F
BOSEKY LIMITED
39 UNION AVE
K08-0053
BOOK 25735 PAGE 147

N/F
TUCKER PROPERTIES LLC
57 UNION AVE
K08-0052
BOOK 53165 PAGE 224

N/F
E B REALTY LLC
0 UNION AVE
K08-0073
BOOK 52138 PAGE 522

N/F
E B REALTY LLC
0 UNION AVE
K08-0057
BOOK 52138 PAGE 522

100'BZ

N/F
MCCARTHY LAURA B ET AL TRUSTEE S
0 UNION AVE
K08-0055
BOOK 26825 PAGE 536

CONTINUED ABOVE

EXISTING MBTA ROW

WF#36-209
WF#36-210
WF#36-211
WF#36-212
WF#36-213
WF#36-214
WF#36-215
WF#36-216
WF#36-217
WF#36-218
WF#36-219 E

PROP 3' SHLD

PROP 10' SUP

CONST ℄

APPROX LIMIT OF GRADING

CONCRETE BOUND (FOUND)

RAILROAD TRACKS

EDGE PVMT

BIT PARKING

WOOD FENCE

2 STORY
CONC BLOCK BUILDING
"METHODS MACHINE TOOLS"

BITUMINOUS PARKING LOT

WF#36-110
WF#36-111
WF#36-112 E

WF#37-100
WF#37-101
WF#37-102
WF#37-103
WF#37-104
WF#37-105
WF#37-106 E

WF#38-98
WF#38-99
WF#38-100
WF#38-101
WF#38-102
WF#38-103
WF#38-104
WF#38-105
WF#38-106
WF#38-107
WF#38-108
WF#38-109 E

WOODED

CONTINUED ON SHEET NO. 06

0 20 50 100
SCALE: 1" = 20'

N/F
TUCKER PROPERTIES LLC
57 UNION AVE
K08-0052
BOOK 53165 PAGE 224

N/F
COTTON JORDAN L&MCIVER CLEMENT
65 UNION AVE
K08-0051
BOOK 11164 PAGE 404

N/F
TUCKER PROPERTIES LLC
75 UNION AVE
K08-0050
BOOK 53165 PAGE 230

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:41 PM

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	07	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

Plotted on 16-Nov-2016 2:42 PM

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CONTINUED ON SHEET NO. 06

CONTINUED BELOW

CONTINUED ABOVE

CONTINUED ON SHEET NO. 08

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CAVICCHIO PAUL F JR
0 CODJER LN
J08-0006
BOOK 25172 PAGE 58

N/F
CAVICCHIO PAUL F JR
0 CODJER LN
J08-0503
BOOK 25172 PAGE 58

N/F
SUDBURY TOWN OF
0 UNION AVE
J08-0009
BOOK 31017 PAGE 194

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

PROP 10' SUP

PROP 3' SHLD

CONST ℄

EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 138.1)

WF#41–113END
WF#41–113
WF#41–112
WF#41–111
WF#41–110
WF#41–109
WF#41–108
WF#41–107
WF#41–106
BF#33–109 START

WF#40–108
WF#40–109
WF#40–110
WF#40–111
WF#40–112
WF#40–113
WF#40–107
WF#40–106
WF#40–105
WF#40–104
WF#40–103
WF#40–102

117 263 118 264 119 265 120 266 121 267 122 268 123

RAILROAD TRACKS

50" WHITE PINES

ROW OF 20"–30" WHITE PINES

0 20 50 100
SCALE: 1" = 20'

BF#32–105
BF#32–104
BF#32–103
BF#32–102
BF#32–101
BF#32–206
BF#32–207
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BF#32–205
BF#32–204
BF#32–203
BF#32–202
BF#32–201
BF#32–200

WF#41–100START
WF#41–101
WF#41–102
WF#41–103
WF#41–104
WF#41–105
WF#41–106

BF#33–109 START
BF#33–108
BF#33–107
BF#33–106
BF#33–105
BF#33–104
BF#33–103
BF#33–102
BF#33–101
BF#33–100 START
BF#33–99
BF#33–98
BF#33–97
BF#33–96
BF#33–95
BF#33–94
BF#33–93
BF#33–92
BF#33–91
BF#33–87
BF#33–86

WF#40–113
WF#40–114
WF#40–115
WF#40–116
WF#40–117
WF#40–118
WF#40–119
WF#40–100START
WF#40–101
WF#40–102

WF#35–216END
WF#35–215
WF#35–214
WF#35–213
WF#35–212
WF#35–211
WF#35–209
WF#35–115
WF#35–116
WF#35–114
WF#35–113
WF#35–112
WF#35–111
WF#35–110

123 269 124 270 125 271 126 272 127 273 128 274

RAILROAD TRACKS

N 8° 45' 56" E 3464.07'

STREAM

CONCRETE ABUTMENT

ROAD DECK

ABANDONED SIGNAL WELL

16"PINE

7"DEC

10"DEC

6"DEC

8"DEC

0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	08	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:42 PM

N/F
SUDBURY WATER DISTRICT
0 WASH BROOK RD
J08-0002
BOOK 12668 PAGE 388

N/F
CUNNINGHAM MICHAEL & JEAN
3 WASH BROOK RD
J08-0311
BOOK 49974 PAGE 258

EXISTING MBTA ROW
CONST ℄
PROP 10' SUP
APPROX LIMIT OF GRADING
PROP 3' SHLD
WIRE FENCE
RAILROAD TRACKS
SIGNAL WELL
CONC POST
ZB001
BF#32-209
BF#32-210
BF#32-211
BF#32-212
BF#32-213
BF#32-214
BF#32-215
BF#32-216
BF#32-220
BF#32-221
WF#35-91
WF#35-92
WF#35-93
WF#35-94
WF#35-96
WF#35-97
WF#35-98
WF#35-99
WF#35-100
WF#35-101
WF#35-102
WF#35-103
WF#35-104
WF#35-105
WF#35-106
WF#35-107
WF#35-108
WF#35-109
WF#35-110
WF#35-111
WF#35-199 START
WF#35-200
WF#35-201
WF#35-202
WF#35-203
WF#35-204
WF#35-206
WF#35-207
WF#35-208
WF#35-209
274 275 276 277 278 279 280
129 130 131 132 133 134

0 20 50 100
SCALE: 1" = 20'

CONTINUED ON SHEET NO. 07

CONTINUED BELOW

N/F
PENDLETON DAVID B & CAROLE E
41 MEADOW DR
J08-0011
BK 32089 PG 419

N/F
PENDLETON DAVID B & CAROLE E
41 MEADOW DR
J08-0011
BOOK 32089 PAGE 419

N/F
GEORGE GREGORY A & CHRISTINE
39 MEADOW DR
J08-0116
BOOK 57353 PAGE 44

N/F
KRAUSS KEVIN MICHAEL & JODI
35 MEADOW DR
J08-0115
BOOK 58399 PAGE 177

N/F
MARCELYNAS GARY F & LESLIE A
4 WASH BROOK RD
J08-0309
BOOK 16189 PAGE 509

N/F
RODDY JANE HIGHTOWER
22 GERRY DR
J08-0308
BOOK 28295 PAGE 180

EXISTING MBTA ROW
PROP 10' SUP
CONST ℄
PROP 3' SHLD
APPROX LIMIT OF GRADING
RAILROAD TRACKS
ZB001
WF#33-104
WF#33-105
WF#33-106
WF#33-107 END
WF#34-102
WF#34-103
WF#34-104
WF#34-105
WF#34-106 END
134 135 136 137 138 139 14
280 281 282 283 284 285

0 20 50 100
SCALE: 1" = 20'

CONTINUED ABOVE

CONTINUED ON SHEET NO. 09

N/F
JSS KEVIN MICHAEL & JODI
35 MEADOW DR
J08-0115
BOOK 58399 PAGE 177

N/F
LEU JAMES C JR & TRACY GEHAN
29 MEADOW DR
J08-0114
BOOK 24771 PAGE 298

N/F
HARTY DANIEL P
25 MEADOW DR
J08-0113
BOOK 14674 PAGE 367

N/F
ARKIN MATTHEW & ALICIA
19 MEADOW DR
J08-0112
BOOK 56672 PAGE 517

N/F
LANZA MARK J &
11 MEADOW DR
J08-0111
BOOK 45671 PAGE 478

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	09	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:42 PM

GERRY DRIVE

OLD LANCASTER RD

N

N/F
DAVIES ADRIAN G & MELINDA J
14 GERRY DR
J08-0307
BOOK 38355 PAGE 267

N/F
JONES CHERYL
233 OLD LANCASTER RD
J08-0301
BOOK 33438 PAGE 39

N/F
CHO CHONG M & WAI-WAI
236 OLD LANCASTER RD
H08-0017
BOOK 45903 PAGE 51

N/F
LANZA MARK J &
11 MEADOW DR
J08-0111
BOOK 45671 PAGE 478

N/F
KREBS W MICHAEL & BARBARA P
223 OLD LANCASTER RD
J08-0101
BOOK 13427 PAGE 420

N/F
MCCORMICK DAVID W JR &
226 OLD LANCASTER RD
H08-0045
BOOK 53725 PAGE 60

N/F
BARIBEAU JOSHUA R & VICTORIA
219 OLD LANCASTER RD
J08-0102
BOOK 55651 PAGE 169

N/F
NICHOLS AMY & ROGER W
220 OLD LANCASTER RD
J08-0012
BOOK 43631 PAGE 248

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

PROP 10' SUP

PROP 3' SHLD

CONST ℄

PC +75.76

WF#33-100
WF#33-101
WF#33-102
WF#33-103
WF#33-104
WF#33-105
WF#33-106

WF#34-100START
WF#34-101
WF#34-102
WF#34-103
WF#34-104

100' BZ

280' BZ

EXISTING 6" WATER

EXISTING OVERHEAD WIRE UTIL 66-10

EXISTING 8" WATER

EDGE PVMT

GRASS

HEDGE

SMALL TREES

STONE WALL

SHRUB

BIT DRIVE

CB RIM=155.95

CB RIM=158.46'

CB RIM=158.54'

CB RIM=158.81'

CB RIM=156.78'

DMH RIM=159.46'

RIP-RAP

EP

SYL

WALK

SWALE

WIRE FENCE

FENCE-UNSPECIFIED TYPE

RAILROAD TRACKS

UTIL 66-9

UTIL 66-8

UTIL 66-7

UPL ABAN

INV 12" RCP EL=153.89'

36" PINE

30" PINE

24" PINE

22" DEC

12" DEC

10" DEC

14" DEC

20" DEC

18" DEC

16" DEC

12" PINE

8" PINE

TWIN 10" DEC

285
286
287
288
289
290
291
140
141
142
143
144
145

0 20 50 100

SCALE: 1" = 20'

CONTINUED ON SHEET NO. 08

CONTINUED ON SHEET NO. 10

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	10	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:43 PM

N/F
WEAVER JAMES C & MELANIE B
248 OLD LANCASTER RD
H08-0008
BOOK 12967 PAGE 255

APPROX LIMIT OF GRADING
EXISTING MBTA ROW
PROP 3' SHLD
PROP 10' SUP
CONST ℄
WIRE FENCE
RAILROAD TRACKS
UPL REMNANTS
SWALE
100'BZ
145 146 147 148 149 150
291 292 293 294 295 296
R=2865.00'
L=807.88'
T=406.64'
+51 PT +83.64
PT +83.64
CONTINUED ON SHEET NO. 09
CONTINUED BELOW

0 20 50 100
SCALE: 1" = 20'

N/F
OSTAR BRUCE
31 PENNYMEADOW RD
H08-0313
BOOK 8364 PAGE 470

N/F
MCCLURE CHRISTOPHER &
35 PENNYMEADOW RD
H08-0312
BOOK 47285 PAGE 246

N/F
KNEELAND WILLIAM E JR & ELAINE
43 PENNYMEADOW RD
H08-0311
BOOK 12513 PAGE 278

WF#32-313 WF#32-312 WF#32-311 WF#32-310 WF#32-309 WF#32-308 WF#32-306 WF#32-305 WF#32-304 WF#32-303 WF#32-302 WF#32-301 WF#32-300 START WF#32-99 WF#41-23 WF#32-98

N/F
WEAVER JAMES C & MELANIE B
248 OLD LANCASTER RD
H08-0008
BOOK 12967 PAGE 255

APPROX LIMIT OF GRADING
EXISTING MBTA ROW
PROP 3' SHLD
CONST ℄
PROP 10' SUP
STONE WALL
RAILROAD TRACKS
UPL
ROCK OUTCROP
4"x10" CONC POST
100'BZ
151 152 153 154 155 156
297 298 299 300 301 302
+51 PT +83.64
PT +83.64
CONTINUED ABOVE
CONTINUED ON SHEET NO. 11

0 20 50 100
SCALE: 1" = 20'

N/F
KNEELAND WILLIAM E JR & ELAINE
43 PENNYMEADOW RD
H08-0311
BOOK 12513 PAGE 278

N/F
NIGRELLI JAMES J JR &
51 PENNYMEADOW RD
H08-0310
BOOK 25881 PAGE 199

N/F
WOLLENSAK RICHARD J & CLAIRE A
60 PENNYMEADOW RD
H08-0012
BOOK 13285 PAGE 445

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	11	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

Plotted on 16-Nov-2016 2:43 PM
608164_HD(GEN).DWG

0 START
WF#41-23
WF#32-98
WF#32-92
WF#32-214 END
EXISTING MBTA ROW
WF#32-213
WF#32-212
WF#32-211
WF#32-210
WF#32-209
WF#32-208
WF#32-207
WF#32-206
WF#32-205
WF#32-204
BF#32-206 END
BF#32-205
BF#32-204
BF#32-203
BF#32-200 START
BF#32-201
BF#32-202
APPROX LIMIT OF GRADING
PROP 3' SHLD
PROP 10' SUP
CONST B
4"x10" CONC POST
16"DEC
CONC POST
RAILROAD TRACKS
N 24° 55' 19" E 1738.40'
CONTINUED ON SHEET NO. 10
CONTINUED BELOW
156
302
157
303
158
304
159
305
160
306
161
307
162
5"DEC
30
100'BZ
WF#33-101
WF#33-102
WF#33-103
WF#33-104
WF#33-105
WF#33-106
WF#33-107
WF#33-108
WF#33-109
WF#BVW-33-100
WF#BVW-33-99 START
WF#BVW-33-110
VGWF 33-111 END
UPL NO# W/RISER
UPL NO# ABAN
UPL #735 ABAN
BOX CULVERT
EL=158.67' 2.2'Wx1.8'H
DEC NOW LOWER HALF ONLY
DEC AGA STUMP ONLY
0 20 50 100
SCALE: 1" = 20'

N/F
WEAVER JAMES C & MELANIE B
248 OLD LANCASTER RD
H08-0008
BOOK 12967 PAGE 255

N/F
WOLLENSAK RICHARD J & CLAIRE A
60 PENNYMEADOW RD
H08-0012
BOOK 13285 PAGE 445

N/F
BOND JOHN T & MARY A
586 PEAKHAM RD
H08-0021
BOOK 12237 PAGE 715

N/F
DIMAURO MIRIAM
588 PEAKHAM RD
H08-0020
BOOK 20764 PAGE 453

N/F
GOLS-CAVALLARO JENNI
594 PEAKHAM RD
H08-0019
BOOK 25679 PAGE 494

N/F
ENSLEY MICHAEL T & LAURIE A
598 PEAKHAM RD
H08-0015
BOOK 32069 PAGE 415

N/F
ALTERIO DINO R & ROACH MAUREEN
602 PEAKHAM RD
H08-0016
BOOK 37859 PAGE 492

N/F
SUDBURY VALLEY TRUSTEES INC
0 CONCORD RD
H09-0012
BOOK 14337 PAGE 1

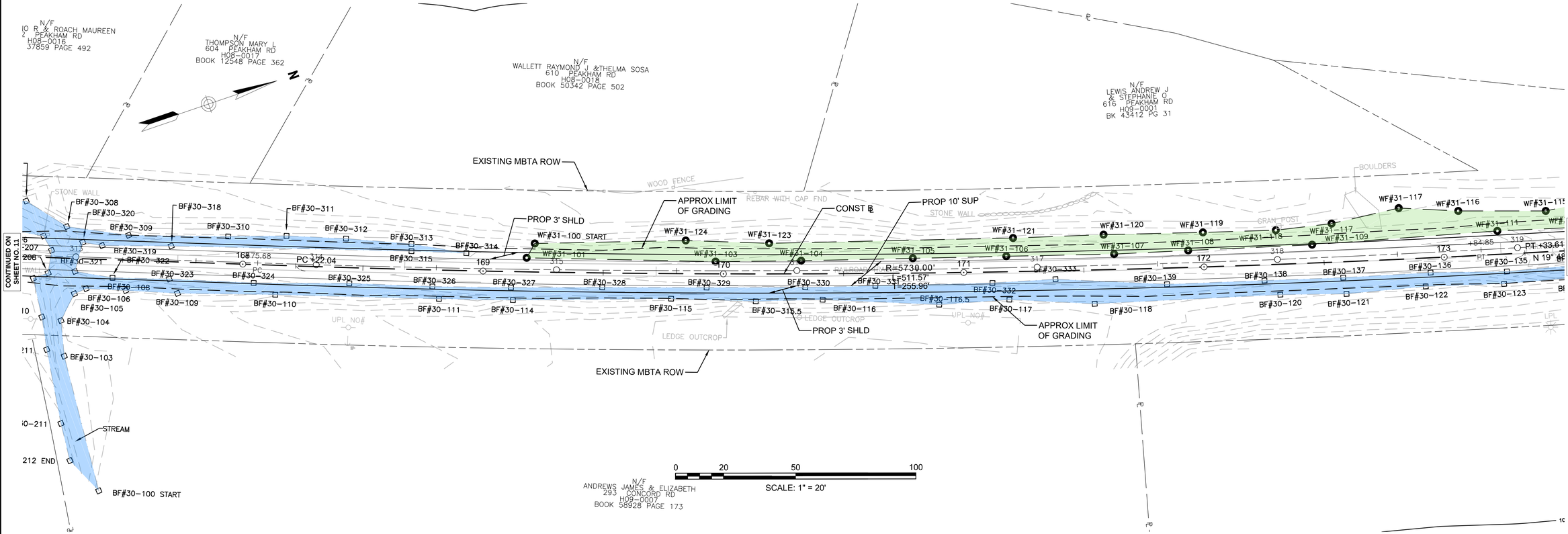
CONTINUED ABOVE
BF#32-103 END
BF#32-100 START
VGWF 32-200 START
WF#32-204
WF#32-203
WF#32-202
WF#32-201
BF#32-101
BF#32-102
SWALE
CONC PAD WITH GUY WIRES
METAL POST ON CONC PAD WITH METAL LADDER
CONC PAD
ABAN ELEC CABINET
162
5 DEC
308
163
309
164
310
165
311
166
312
313
WF#32-105E
WF#32-104
BF#30-200 START
BF#30-300 START
BF#30-301
BF#30-302
BF#30-303
BF#30-203
BF#30-204
BF#30-205
BF#30-206
BF#30-207
BF#30-208
BF#30-209
BF#30-210
BF#30-211
BF#30-212 END
BF#30-201
BF#30-202
STREAM
CONST B
EDGE OF STREAM
BF#30-307
BF#30-306
BF#30-308
BF#30-320
BF#30-309
BF#30-318
BF#30-319
BF#30-322
BF#30-321
BF#30-323
BF#30-108
BF#30-106
BF#30-105
BF#30-109
BF#30-104
BF#30-103
BF#30-100 START
STONE WALL
PROP 3' SHLD
PROP 10' SUP
EXISTING MBTA ROW
APPROX LIMIT OF GRADING
CONTINUED ON SHEET NO. 12
0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	12	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:43 PM



SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	13	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:43 PM

CONTINUED ON SHEET NO. ##

N

HUDSON RD (RTE 27)

PEAKHAM ROAD

MURI N/F
623 PEAKHAM RD
H09-0056
BOOK 12468 PAGE 519

N/F
TIGHE LAWRENCE W
40 HUDSON RD
G09-0001
BOOK 33228 PAGE 333

N/F
PENN CENTRAL TRANSPORTATION CO
0 HUDSON RD
G09-0012
BOOK 7074 PAGE 339

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

PROP 3' SHLD

PROP 10' SUP

CONST B

R=250.00'
L=45.71'
T=22.92'

PC +51.70
R=500.00'
L=46.81'
T=23.42'

PRC +98.51
R=1050.00'
L=98.36'
T=49.21'

PRC +21.88
PT +67.59
PC +76.17
PT +33.61
N 19° 48' 24" E 84.11'
N 19° 48' 24" E 42.56'

WF#31-117
WF#31-116
WF#31-115
WF#31-114
WF#31-113
WF#31-112
WF#31-111
WF#31-109
F#31-117

BF#30-137
BF#30-136
BF#30-135
BF#30-134
BF#30-133
BF#30-132
BF#30-126
BF#30-125
BF#30-124
BF#30-123
BF#30-122
BF#30-121

N/F
29 HUDSON ROAD LLC
29 C HUDSON RD
H09-0002
BOOK 58156 PAGE 562

N/F
GILMARTIN MATTHEW S & MOLLY F
30 HUDSON RD
H09-0068
BOOK 42175 PAGE 386

0 20 50 100
SCALE: 1" = 20'

CONTINUED ON SHEET NO. 12

CONTINUED ON SHEET NO. 14

CONTINUED ON SHEET NO. ##

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	14	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

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N/F
TIGHE LAWRENCE W TRS THE HUDSO
36 HUDSON RD
G09-0002
BOOK 30663 PAGE 361

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

CHAIN LINK FENCE

PROP 10' SUP

CONST ℄

PROP 3' SHLD

CONTINUED ON SHEET NO. 13

CONTINUED BELOW

9" DEC

324 179 325 180 326 181 327 182 328 183 329 184 330

RAILROAD TRACKS

CONCRETE BOUND W/DRILL HOLE

LEDGE OUTCROP

BRICK WALL

BP FOUND
RAILROAD EASEMENT

N/F
LMARTIN MATTHEW S & MOLLY F
30 HUDSON RD
H09-0068
BOOK 42175 PAGE 386

N/F
MCCARTHY LAURA B TRUSTEE
0 HUDSON RD
G09-0004
BOOK 39213 PAGE 381

0 20 50 100
SCALE: 1" = 20'

N/F
TOWN OF SUDBURY
0 HUDSON RD
G09-0200
BOOK 13189 PAGE 604

CONTINUED ABOVE

CONTINUED ON SHEET NO. 15

4"x10" CONC POST

5" PINE

184 330 185 331 186 332 187 333 188 334 189 335 190

WF#36-1
WF#36-2
WF#36-3
WF#36-4
WF#36-6
WF#36-7

ISOLATED WETLAND
(SURVEYED BY OTHERS)

BATTERY ON CONC PAD

28.00'

0 20 50 100
SCALE: 1" = 20'

N/F
BARTLETT DOROTHY M&MCCARTHY
0 CONCORD RD
G09-0100
BOOK 18121 PAGE 376

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	15	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:44 PM

N/F
TOWN OF SUDBURY
0 HUDSON RD
G09-0200
BOOK 13189 PAGE 604

N/F
SUDBURY TOWN OF
0 CONCORD RD
G09-0003
BOOK 24441 PAGE 588

N/F
ABRAMS LAURA B TRS
0 CONCORD RD
G09-0300
BOOK 46941 PAGE 450

N/F
SUDBURY TOWN OF
0 CONCORD RD
G09-0003
BOOK 24441 PAGE 588

N/F
ABRAMS LAURA B TRS
0 CONCORD RD
G09-0300
BOOK 46941 PAGE 450

CONTINUED ON SHEET NO. 14

CONTINUED BELOW

CONTINUED ABOVE

CONTINUED ON SHEET NO. 16

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

PROP 10' SUP

PROP 3' SHLD

CONST B

N 19° 48' 11" E 3091.63'

EXIST CATTLE CROSSING

EX 4"GAS IN 8"SLEEVE

BRIDGE ABUTMENTS

METAL BRIDGE DECK

RAILROAD TRACKS

BP FOUND
RAILROAD EASEMENT

15" PINE

BATTERY ON CONC PAD

WF#36-1

WF#36-7

WF#27-119 END

WF#7-120 END

WF#27-117

WF#27-116

WF#27-115

WF#27-114

WF#27-113

WF#27-111

WF#27-109

WF#27-108

WF#27-107

WF#27-105

WF#27-104

WF#27-103

WF#27-102

WF#27-100 START

BF#27-206 END

BF#27-100START

BF#27-105

BF#27-104

BF#27-102

BF#27-101

STREAM

BOX CULVERT
TOP=172.41'

EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 171.9)

EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 174.3)

WF#26-112

WF#26-114

WF#26-113

WF#26-115

WF#26-116

WF#26-108

WF#26-107

WF#26-105

WF#26-104

WF#26-103

WF#26-102

WF#26-101

BF#26-108 END

BF#26-100 START

BF#26-105

BF#26-103

BF#26-102

BF#26-101

METAL RAIL POST

RAILROAD TRACKS

0 20 50 100

SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	16	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:45 PM

7–100 START

N/F
SUDBURY TOWN OF
0 CONCORD RD
G09–0003
BOOK 24441 PAGE 588

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

PROP 10' SUP

CONST B

PROP 3' SHLD

CONTINUED ON SHEET NO. 15

CONTINUED BELOW

METAL RAIL POST

CONC. POST

RAILROAD TRACKS

346 201 347 202 348 203 349 204 350 205 351 206 352

PROP 3' SHLD

APPROX LIMIT OF GRADING

EXISTING MBTA ROW

EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 174.3)

6–104

-103

28.001

100.82

0 20 50 100

SCALE: 1" = 20'

N/F
RICHARDS JAMES C & SUSAN M
44 CODMAN DR
G09–0807
BOOK 24467 PAGE 551

WF#25–120

N/F
TOWN OF SUDBURY
0 WAKE ROBIN RD
F09–0001
BOOK 12501 PAGE 703

WF#25–112

WF#25–110

WF#25–111

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

PROP 10' SUP

CONST B

PROP 3' SHLD

WF#25–108.5

WF#25–108

WF#25–107

WF#25–106

WF#25–105

WF#25–103

WF#25–102

CONTINUED ABOVE

CONTINUED ON SHEET NO. 17

206 352 207 353 208 354 209 355 210 356 211 357

PC +89.49 R=4000.00' L=60.86' T=30.43'

PT +49.35

N 18° 55' 52" E 139.23'

PC +89.68 R=4000.00' L=61.11' T=30.55'

PT +49.69

N 19° 48' 24" E 131.21'

RAILROAD TRACKS

PROP 3' SHLD

WF#24–111

WF#24–110

WF#24–109

WF#24–108

WF#24–107

WF#24–106

WF#24–105

WF#24–104

WF#24–112

WF#24–113

APPROX LIMIT OF GRADING

BF#15–24–124

BF#15–24–125 END

BF#15–24–100 START

BF#15–24–101

EXISTING MBTA ROW

WF#23–114

WF#24–115

WF#24–116 END

0 20 50 100

SCALE: 1" = 20'

N/F
CHARDS JAMES C & SUSAN M
44 CODMAN DR
G09–0807
BOOK 24467 PAGE 551

N/F
WOLIN STEVEN M
& MAUREEN G
42 CODMAN DR
G09–0808
BOOK 46761 PAGE 55

N/F
SHEDD CAROL A
51 MORSE RD
F09–0003
BOOK 37232 PAGE 274

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	17	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:45 PM

N

N/F
HAYNES HONORA
82 MORSE RD
F09-0002
BOOK 8249 PAGE 342

N/F
SHEDD CAROL A
51 MORSE RD
F09-0003
BOOK 37232 PAGE 274

MORSE RD

100'BZ

WF#25-99 START
WF#25-100 START
WF#25-101
WF#25-103
WF#25-102
WF#24-104
WF#24-105
WF#24-106
WF#24-103
WF#24-102
WF#24-100S

APPROX LIMIT OF GRADING
EXISTING MBTA ROW
PROP 10' SUP
CONST B
PROP 3' SHLD
PC +81.43
PT +81.42
R=4000.00'
L=99.99'
T=50.00'
N 18° 22' 25" E 100.04'
N 19° 48' 24" E 473.47'

BF#15-24-123
BF#15-24-122
BF#15-24-121
BF#15-24-120
BF#15-24-119
BF#15-24-118
BF#15-24-117
BF#15-24-116
BF#15-24-114
BF#15-24-113
BF#15-24-112
BF#15-24-110
BF#15-24-111
BF#15-24-108
BF#15-24-109
BF#15-24-107
BF#15-24-106
BF#15-24-105
BF#15-24-104
BF#15-24-103
BF#15-24-102
BF#15-24-124
BF#15-24-125 END
BF#15-24-100 START
BF#15-24-101

BF#23-300 START
BF#23-301
BF#23-304
BF#23-305 END
BF#23-215
BF#23-214
BF#23-213
BF#23-212
BF#23-217
BF#23-218
BF#23-219
BF#23-216

216
217
215
361
362

STONE BOUND (FOUND)
GRAVEL WALK
WOOD HEADWALL
EXISTING 12" RCP
WOOD FENCE
STONE WALL
20' WIDE LOCUST TREE
EDGE PVMT
EXISTING ELECTRIC
EX 10" CMP
EX 12" CMP
EXISTING 2" GAS
EXISTING OVERHEAD WIRE
EXISTING 24" RCP
EXISTING 8" WATER
EXISTING 8" SEWER
CULVERT EL=166.78' 12"CMP
CULVERT EL=165.37' 12"RCP
CULVERT EL=165.48' 12"RCP
BM "MAG" SET EL=169.20
BM "MAG" SET EL=169.20
UTILITY POLE #MA40
UTILITY POLE #MA40

CONTINUED ON SHEET NO. 16
CONTINUED ON SHEET NO. 18

0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	18	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:45 PM

N/F
HAYNES HONORA
82 MORSE RD
F09-0002
BOOK 8249 PAGE 342

N/F
HAYNES HONORA
0 MORSE RD
F09-0004
BOOK 8691 PAGE 463

N/F
TOWN OF SUDBURY
0 MORSE RD
F09-0006
BOOK 9599 PAGE 151

N/F
TOWN OF SUDBURY
491 CONCORD RD
F10-0001
BOOK 9599 PAGE 151

N/F
WONG JEAN ARTHUR
20 ALESIN DR
F09-0415
BOOK 16499 PAGE 289

CONTINUED ON SHEET NO. 17

CONTINUED BELOW

CONTINUED ABOVE

CONTINUED ON SHEET NO. 19

EXISTING MBTA ROW
APPROX LIMIT OF GRADING
PROP 10' SUP
PROP 3' SHLD
CONST ℄
EXISTING MBTA ROW
APPROX LIMIT OF GRADING
EXISTING MBTA ROW
EXISTING MBTA ROW
PROP 3' SHLD
PROP 10' SUP
PROP 3' SHLD
APPROX LIMIT OF GRADING
EXISTING MBTA ROW

N 19° 48' 24" E 473.47'
PC +54.89
R=2000.00'
L=79.98'
T=40.00'
PT +34.87
N 22° 05' 52" E 105.93'
PC +40.79
R=2000.00'
L=80.57'
T=40.79'
PT +22.36
N 19° 45' 40" E 69.86'
PC +92.23
R=2700.00'
L=719.35'
T=361.82'

BF#23-214 BF#23-213 BF#23-212 BF#23-211 BF#23-210 BF#23-209 BF#23-208 BF#23-207 BF#23-206 BF#23-205 BF#23-204 BF#23-203 BF#23-202 BF#23-201 BF#23-200 START
BF#23-217 BF#23-218 BF#23-219 BF#23-220 BF#23-221 BF#23-222 BF#23-223 BF#23-224 BF#23-225 BF#23-226 BF#23-227 BF#23-228 BF#23-229 BF#23-230 BF#23-231 END

WF#21-158 WF#21-157 WF#21-156 WF#21-154 WF#21-153 WF#21-152 WF#23-151 WF#23-150 WF#21-125 WF#21-124 WF#21-123 WF#21-122 WF#21-121 WF#21-119 WF#21-1
WF#23-120 WF#23-119 WF#23-118 WF#23-117 WF#23-116

BF#21-150 BF#21-147 BF#21-145 BF#21-146

BF#21-150 BF#21-149 BF#21-148 BF#21-147 BF#21-146 BF#21-145 BF#21-144 BF#21-143 BF#21-142 BF#21-141 BF#21-140 BF#21-139 BF#21-138 BF#21-137 BF#21-136 BF#21-135 BF#21-134 BF#21-129 BF#21-128 BF#21-127 BF#21-126 BF#21-125 BF#21-124 BF#21-123 BF#21-122 BF#21-121 BF#21-120 BF#21-119 BF#21-118 BF#21-117 BF#21-116

WF#21-119 WF#21-118 WF#21-117 WF#21-116 WF#21-115 WF#21-114 WF#21-112 WF#21-109 WF#21-108
WF#23-118 WF#23-117 WF#23-116 WF#23-115 WF#23-113 WF#23-112 WF#23-111 WF#23-110 WF#23-109 WF#23-108 WF#23-107 WF#23-106 WF#23-105 WF#23-104 WF#23-103 WF#23-102
WF#22-105 WF#22-104 WF#22-103 WF#22-102 WF#22-100 START WF#22-108 END

BF#23-101 BF#23-102 BF#23-101 BF#23-100 START BF#23-104 BF#23-105 BF#23-106 BF#23-107 BF#23-108 BF#21-208 BF#21-209 BF#21-207 BF#21-202 BF#21-201 BF#21-205 BF#23-108 BF#21-204 BF#21-206 BF#21-203

CONST ℄ WF#21-154 WF#21-153 WF#21-152 WF#23-151 WF#23-150 WF#21-125 WF#21-124 WF#21-123 WF#21-122 WF#21-121 WF#21-119 WF#21-1
WF#23-120 WF#23-119 WF#23-118 WF#23-117 WF#23-116

WF#21-119 WF#21-118 WF#21-117 WF#21-116 WF#21-115 WF#21-114 WF#21-112 WF#21-109 WF#21-108
WF#23-118 WF#23-117 WF#23-116 WF#23-115 WF#23-113 WF#23-112 WF#23-111 WF#23-110 WF#23-109 WF#23-108 WF#23-107 WF#23-106 WF#23-105 WF#23-104 WF#23-103 WF#23-102
WF#22-105 WF#22-104 WF#22-103 WF#22-102 WF#22-100 START WF#22-108 END

BF#23-101 BF#23-102 BF#23-101 BF#23-100 START BF#23-104 BF#23-105 BF#23-106 BF#23-107 BF#23-108 BF#21-208 BF#21-209 BF#21-207 BF#21-202 BF#21-201 BF#21-205 BF#23-108 BF#21-204 BF#21-206 BF#21-203

0 20 50 100
SCALE: 1" = 20'

0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	19	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:45 PM

BF#21–117
BF#21–116
BF#21–115
BF#21–113
BF#21–114
BF#21–118
BF#21–119
BF#21–120
122
N/F
MCCORMICK DAVID J & MARY ANN
55 HUNT RD
F09–0217
BOOK 990 PAGE 95
N
APPROX LIMIT OF GRADING
PROP 10' SUP
EXISTING MBTA ROW
CONST ℄
PROP 3' SHLD
WF#21–109
WF#21–108
WF#21–107
WF#21–106
WF#21–105
WF#21–104
WF#21–103
WF#21–102
WF#21–101
WIRE FENCE
DONC POST
CONTINUED ON SHEET NO. 18
228
374
229
375
230
PT +11.58
376.61
PT
231
377
232
378
233
379
234
RAILROAD TRACKS
RAILROAD CROSSING
RAILROAD TRACK
WF#22–104
WF#22–103
WF#22–102
WF#22–101
WF#22–108 END
WF#22–100 START
UPL ABAN
WIRE FENCE (REMNANTS)
RR TIE STEPS
PROP 3' SHLD
WF#20–103
WF#20–102
WF#20–101
WF#20–104
WF#20–100 START
EXISTING MBTA ROW
APPROX LIMIT OF GRADING
BOULDER
CONTINUED BELOW
N/F
CLARK IAN & ABIGAIL
35 BISHOP LN
F09–0518
BOOK 57890 PAGE 7
N/F
SALVIA PETER M & SUSAN W
45 BISHOP LN
F09–0517
BOOK 30726 PAGE 170
100'BZ
28.00'
0 20 50 100
SCALE: 1" = 20'
N/F
LUTZ ERIN K & SUKHIJA REM
49 HUNT RD
F09–0219
BOOK 54795 PAGE 479
N/F
CRARY MINER A & HELEN H
1 HUNT RD
F09–0218
BOOK 49154 PAGE 427
N/F
SUDBURY VALLEY TRUSTEES INC
27 HUNT RD
F09–0126
BOOK 14501 PAGE 291
WF#19–126
WF#19–126 END
APPROX LIMIT OF GRADING
EXISTING MBTA ROW
WF#19–125
WF#19–124
WF#19–123
WF#19–122
WF#19–121
WF#19–120
PROP 3' SHLD
WF#19–119
WF#19–117
WF#19–116
CONTINUED ABOVE
379
234
380
235
381
236
N 4° 29' 46" E 1146.80'
382
237
383
238
384
239
385
WF#18–115
WF#18–114
WF#18–113
WF#18–112
WF#18–111
WF#18–110
WF#18–109
WF#18–108
PROP 10' SUP
CONST ℄
APPROX LIMIT OF GRADING
PROP 3' SHLD
WF#18–116 END
EXISTING MBTA ROW
CONTINUED ON SHEET NO. 20
N/F
SALVIA PETER M & SUSAN W
45 BISHOP LN
F09–0517
BOOK 30726 PAGE 170
N/F
HERZOG LOUIS J & ROBIN
42 BISHOP LN
F09–0516
BOOK 36564 PAGE 274
N/F
WINNEG ROBERT D & CAROLINE V
34 BISHOP LN
F09–0515
BOOK 28083 PAGE 576
N/F
FREEDMAN JON R &
29 THOMPSON DR
F10–0511
BOOK 25658 PAGE 242
0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	20	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:46 PM

N/F
SUDBURY VALLEY TRUSTEES INC
27 HUNT RD
F09-0126
BOOK 14501 PAGE 291

N/F
STEINER KENNETH &
19 HUNT RD
F09-0127
BOOK 18899 PAGE 359

N/F
SCHOW JOAN M
11 HUNT RD
F09-0128
BOOK 12241 PAGE 378

N/F
CRARY MINER A & HELEN H
1 HUNT RD
F09-0218
BOOK 49154 PAGE 427

N/F
FREEDMAN JON R &
29 THOMPSON DR
F10-0511
BOOK 25658 PAGE 242

N/F
ROBERT D & CAROLINE V
34 BISHOP LN
F09-0515
K 28083 PAGE 576

N/F
NEISON C KIRK DIANE P
37 THOMPSON DR
F09-0511
BOOK 14592 PAGE 464

N/F
WRY CHARLES A JR & RUTHANN
45 THOMPSON DR
F09-0510
BOOK 28853 PAGE 357

N/F
BLOOM JEFFREY & TIFFANY
53 THOMPSON DR
F09-0509
BOOK 54638 PAGE 30

N/F
ALBEE RICHARD S
5 HUNT RD
F09-0129
BOOK 20726 PAGE 208

N/F
WALLACK ALLAN L & NADINE
0 THOMPSON DR
F09-0508
BOOK 15852 PAGE 479

N/F
WALLACK ALLAN L & NADINE
67 THOMPSON DR
F09-0507
BOOK 15852 PAGE 479

STONE BOX CULVERT
1.7'H x 2.4'W
EL=133.81'

STONE BOX CULVERT
1.7'H x 2.4'W
EL=133.75'

STONE BOX CULVERT
24"H x 20"W
EL=129.73'

EX CULVERT

STONE CULVERT
24"H x 20"W
EL=129.57'

OUTLET
EL=130.73' 16"RCP

EX 16"RCP

BOX CULVERT
EL=131.82' 24"H x 24"W

EL=129.57

APPROX LIMIT OF GRADING

EXISTING MBTA ROW

CONST ℄

PROP 10' SUP

PROP 3' SHLD

TOP OF BANK

WIRE FENCE

WIRE FENCE (REMNANTS)

RAILROAD TRACKS

UTILITY POST

UPL ABAN

CONCRETE BOUND W/DRILL HOLE

15"DEC

100'BZ

BF#19-204 END
BF#19-203
BF#19-201
BF#19-202
BF#19-111
BF#19-112
BF#19-113
BF#19-100 START
BF#19-101
BF#19-102
BF#19-103 END
BF#17-103
BF#17-102
BF#17-110
BF#17-104 END
BF#17-100 START
BF#17-101
BF#17-99 START
BF#16-103
BF#16-102
BF#16-101
BF#16-100 START

WF#19-117
WF#19-116
WF#19-115
WF#19-114
WF#19-113
WF#19-110
WF#19-109
WF#19-108
WF#19-107
WF#19-106
WF#19-105
WF#19-104
WF#19-103
WF#19-102
WF#19-101
WF#18-109
WF#18-108
WF#18-107
WF#18-106
WF#18-105
WF#18-104
WF#18-103
WF#18-102
WF#18-101
WF#18-100 START
WF#17-110 END
WF#17-109
WF#17-108
WF#17-107
WF#17-106
WF#17-104
WF#17-103
WF#17-102
WF#17-101
WF#17-100 START
WF#17-99 START
WF#16-106 END
WF#16-105
WF#16-104
WF#16-103
WF#16-102
WF#16-101
WF#16-100 START

239 385 240 386 241 387 PC +58.38 242 388 PT +41.59 243 389 PC +08.68 R=1250.00' L=83.21' T=41.62' PT +31.89 244 390 245

N 8° 18' 36" E 67.09'

N 4° 29' 46" E 128.45'

R=1250.00'
L=83.21'
T=41.62'

390 391 245 PC +20.35 R=600.00' L=59.80' T=29.93' PT +80.15 246 N 1° 12' 52" W 40.65' PC +20.80 R=600.00' L=59.80' T=29.93' PT +80.60 247 393 248 394 249 395 250 396

N 4° 29' 46" E 128.45'

CONTINUED ON SHEET NO. 19

CONTINUED BELOW

CONTINUED ABOVE

CONTINUED ON SHEET NO. 21

0 20 50 100

SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	21	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:46 PM

N/F
CRARY MINER A & HELEN H
1 HUNT RD
F09-0218
BOOK 49154 PAGE 427

N/F
CRARY MINER A & HELEN H
1 HUNT RD
F09-0218
BOOK 49154 PAGE 427

N/F
WEST PANTRY BROOK FARM LIMITED
667 CONCORD RD
E10-0200
BOOK 49200 PAGE 410

N/F
WALLACK ALLAN L & NADINE
67 THOMPSON DR
E09-0507
BOOK 15852 PAGE 479

N/F
WEST PANTRY BROOK FARM LIMITED
667 CONCORD RD
E10-0200
BOOK 49200 PAGE 410

N/F
WEST PANTRY BROOK FARM LIMITED
667 CONCORD RD
E10-0200
BOOK 49200 PAGE 410

N/F
WEST PANTRY BROOK FARM LIMITED
667 CONCORD RD
E10-0200
BOOK 49200 PAGE 410

N/F
WEST PANTRY BROOK FARM LIMITED
667 CONCORD RD
E10-0200
BOOK 49200 PAGE 410

N

WF#13-140 WF#13-139 WF#13-138 WF#13-137 WF#13-136

EXISTING MBTA ROW
FIELDSTONE WALL
WOOD FENCE
WIRE FENCE
PROP 3' SHLD
CONST ℄
PROP 10' SUP
APPROX LIMIT OF GRADING
100'BZ
CONTINUED ON SHEET NO. 20
CONTINUED BELOW
250 396 251 397 252 398 253 399 254 400 255 401 256
N 4° 29' 46" E 1218.88'
RAILROAD TRACKS
UPL ABAN
WIRE FENCE (REMNANTS)
CONCRETE BOUND W/DRILL HOLE
DRILL HOLE(FND)
METAL FENCE POST

0 20 50 100
SCALE: 1" = 20'

PS1-22 PS1-21 PS1-14

WF#13-137 WF#13-136 WF#13-134 WF#13-133 WF#13-132 WF#13-131 WF#13-130 WF#13-129 WF#13-128 WF#13-127 WF#13-126 WF#13-125 WF#13-124 WF#13-123 WF#13-122 WF#13-121 WF#13-120 WF#13-119 WF#13-118

APPROX LIMIT OF GRADING
EXISTING MBTA ROW
WIRE FENCE
BRIDGE ABUTMENTS
BRIDGE DECK
PROP 10' SUP
CONST ℄
PROP 3' SHLD
EXIST CATTLE CROSSING
CONTINUED ABOVE
CONTINUED ON SHEET NO. 22
401 256 402 257 403 258 404 +46.75 PC 250 +99.48 405 260 406 261 407
RAILROAD TRACKS
6"DEC
UPL ABAN
POST
100'BZ
200'RA

0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	22	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:47 PM

CONTINUED ON SHEET NO. 21

CONTINUED BELOW

CONTINUED ABOVE

CONTINUED ON SHEET NO. 23

PS1-14 PS1-14 PS1-13 PS1-12 PS1-11 PS1-10 PS1-3 PS1-2 PS1-2A PS1-1 PS1-1A

WF#13-119 WF#13-120 WF#13-118 WF#13-117 WF#13-116 WF#13-115 WF#13-114 WF#13-112 WF#13-111 WF#13-110 WF#13-105 WF#13-104 WF#13-103 WF#13-102 WF#13-102

WF#14-103 WF#14-104 WF#14-105 WF#14-106 WF#14-108 END WF#14-107 WF#14-102 WF#14-101 WF#14-100 START WF#14-115 START WF#14-117 WF#14-118 WF#14-116 WF#14-121 WF#14-122 WF#14-123 WF#14-109 WF#14-110 END

WF#12-127 END WF#12-126 BF#12-204 END WF#12-125 WF#12-116 WF#12-115 WF#12-114 WF#12-113 WF#12-111 WF#12-112 WF#12-110 WF#12-

WF#15-102 WF#15-101 WF#15-104 WF#15-106 WF#15-100 WF#15-105 WF#15-107 END

WF#14-121 WF#14-122 WF#14-123 WF#14-131 WF#14-132 WF#14-130 WF#14-129 WF#14-133 WF#14-134E WF#14-150 START WF#14-151 WF#14-152 WF#14-154 WF#14-156 WF#14-153 WF#14-157 WF#14-158 WF#14-159 WF#14-160 WF#14-161 WF#14-162 WF#14-163 WF#14-164

PS1-11 APPROX LIMIT OF GRADING

PS1-2 EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 123.7)

EXISTING MBTA ROW

PROP 10' SUP

PROP 3' SHLDR

PROP 3' SHLD

CONST ℄

EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 123.7)

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 123.7)

APPROX LIMIT OF GRADING

EXISTING MBTA ROW

CONST ℄

PROP 10' SUP

EXIST CATTLE CROSSING

PROP 3' SHLD

PROP 3' SHLD

APPROX LIMIT OF GRADING

ZONE A FLOOD LIMIT (NO BFE)

R=2700.00'
L=562.41'
T=282.23'

PT +61.89

+36.53

N 16° 25' 51" E 868.04'

0 20 50 100
SCALE: 1" = 20'

0 20 50 100
SCALE: 1" = 20'

WIRE FENCE
RAILROAD TRACKS
7"PINE
CHAIN LINK FENCE
METAL POST
STONE BRIDGE ABUTMENT (COLLAPSING)
STONE BRIDGE ABUTMENT
PT CONCRETE BOUND(FND)
UPL ABAN
16" DEC
BRIDGE DECK
WALL ON DECK
FIELDSTONE WALL
PC STONE BOUND W/EPLP
9"PINE
100'BZ

N/F
WEST PANTRY BROOK FARM LIMITED
667 CONCORD RD
E10-0200
BOOK 49200 PAGE 410

N/F
TOWN OF SUDBURY
296 MARLBORO RD
D09-0204
BOOK 14547 PAGE 323

N/F
ROCKLAGE SCOTT M & PATTY B
0 MARLBORO RD
E09-0600
BOOK 47241 PAGE 213

N/F
VERRILL STEPHEN & JOAN
0 HAYNES RD
E10-0700
BOOK 14819 PAGE 188

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	23	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:47 PM

CONTINUED ON SHEET NO. 22

CONTINUED ON SHEET NO. 24

HAYNES RD

N/F
DEPOMPEI M EILEEN & DANIEL A
35 HAYNES RD
D09-0007
BOOK 16644 PAGE 273

N/F
VROMAN RICHARD J & MICHELLE R
34 HAYNES RD
D10-0024
BOOK 42291 PAGE 471

N/F
VERRILL STEPHEN & JOAN
0 HAYNES RD
E10-0700
BOOK 14819 PAGE 188

N/F
RICHARD ARTHUR J & MARGARET A
31 HAYNES RD
D10-0001
BOOK 24653 PAGE 464

N/F
BOLAND CHRISTOPHER G & ALISON M
21 HAYNES RD
D10-0002
BOOK 28689 PAGE 158

ZONE A FLOOD LIMIT (NO BFE)

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

CONST ℄

PROP 10' SUP

PROP 3' SHLD

AREA OF SCATTERED ROCKS AND LEDGE OUTCROPS

FIELDSTONE WALL

STONE WALLS

LANDSCAPED AREA

RAILROAD TRACKS

EXISTING 12"WATER

EXISTING OVERHEAD WIRE

EXISTING 4"GAS

UPL 30/7 W/TRANS

UPL 3%/4" W/RISERS

UPL 7/40

UPL ABAN

EDGE PVMT

BIT DRIVE

GRAVEL DRIVE

CULVERT EL=125.5' 15"RCP

CULVERT EL=132.86' 12"PVC

OUTLET EL=129.65' 12"RCP

PC +29.92
R=600.00'
L=64.55'
T=32.31'
N 22° 35' 42" E 44.24'
PT +94.48

PC +38.72
R=200.00'
L=43.20'
T=21.68'

PT +81.92
N 10° 13' 10" E 77.55'

PI +59.47

PT CONCRETE BOUND W/EPLP +93.22

PC STONE BOUND W/EPLP +36.53

WF#12-100 START
WF#12-101
WF#12-102
WF#12-103
WF#12-104
WF#12-105
WF#12-106
WF#12-107
WF#12-108
WF#12-109
WF#12-110
WF#12-111
WF#12-112
WF#12-113
WF#12-114

BF#12-100 START
BF#12-101
BF#12-102
BF#12-103
BF#12-104
BF#12-105
BF#12-106
BF#12-107
BF#12-108
BF#12-109
BF#12-110
BF#12-111 END

WF#14-161
WF#14-162
WF#14-163
WF#14-164
WF#14-165
WF#14-166
WF#14-167
WF#14-168
WF#14-169
WF#14-170 END

BF#15-14-300
BF#15-14-301
BF#15-14-302
BF#15-14-303
BF#15-14-304 END

WF#42-100 START
WF#42-101
WF#42-102
WF#42-103
WF#42-104
WF#42-105
WF#42-114
WF#42-115 END

100'BZ

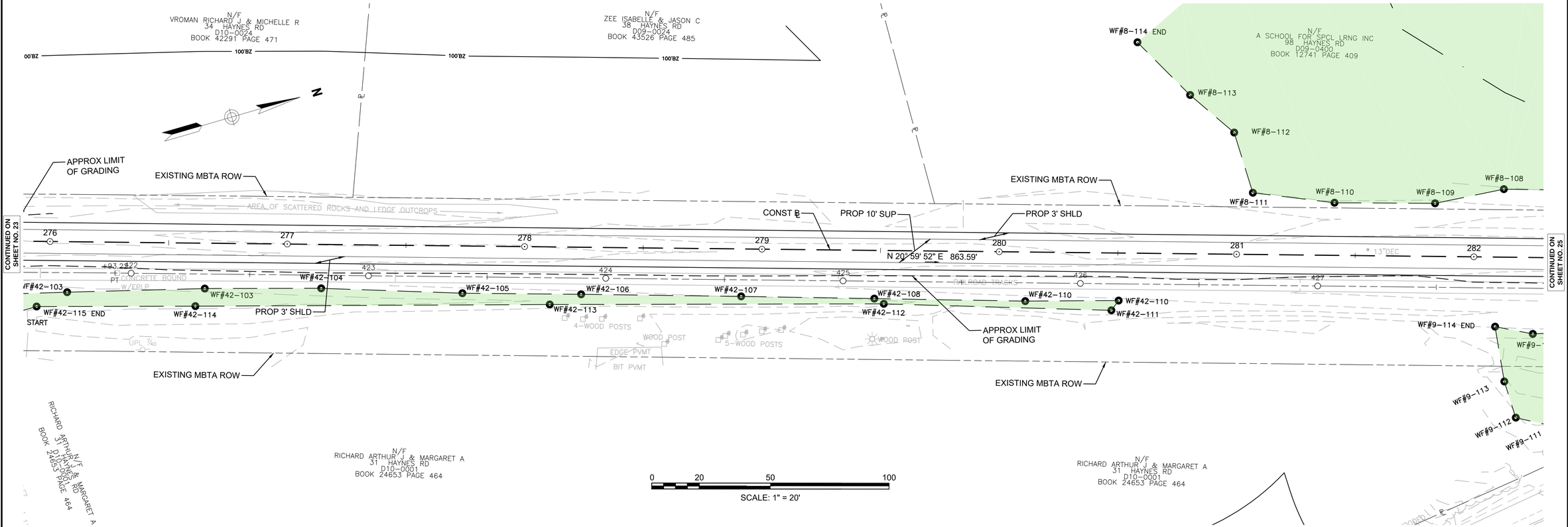
0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	24	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:47 PM



CONTINUED ON SHEET NO. 23

CONTINUED ON SHEET NO. 25

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	25	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:47 PM

BF#8-112 END
BF#8-111
BF#8-110
BF#8-109
BF#8-108
BF#8-107
BF#8-106
BF#8-105
BF#8-104
BF#8-103
BF#8-102
BF#8-101
BF#8-100 START
WF#8-110
WF#8-109
WF#8-108
WF#8-107
WF#8-106
WF#8-105
WF#8-104
WF#8-103
WF#8-102
WF#8-101
WF#8-100 START
EXISTING MBTA ROW
PROP 10' SUP
APPROX LIMIT OF GRADING
ZONE A FLOOD LIMIT (NO BFE)
PANTRY RD
N/F SCHOOL FOR SPCL LRNG INC 98 HAYNES RD D09-0400 BOOK 12741 PAGE 409
N/F EAST GEORGE H JR & 0 PANTRY RD D10-0013 BOOK 19927 PAGE 213
N/F LYMAN LYNDEN & KRISTIN E 76 PANTRY RD D10-0400 BOOK 26054 PAGE 548
CONST ℄
PI +23.06
N 33° 29' 29" E 60.09'
PI +83.15
PROP 3' SHLD
CONTINUED ON SHEET NO. 24
CONTINUED ON SHEET NO. 26
BF#6-105 END
BF#6-100 START
BF#6-103
BF#6-102
BF#6-101
WF#6-172
WF#6-171
WF#6-170
WF#6-169
WF#6-168
WF#6-167
WF#9-114 END
WF#9-113
WF#9-112
WF#9-111
WF#9-110
WF#9-109
WF#9-108
WF#9-107
WF#9-106
WF#9-105
WF#9-104
WF#9-103
WF#9-102
WF#9-101
WF#9-100 START
BF#7-102
BF#7-103
BF#7-104
BF#7-106
BF#7-107
BF#7-108
BF#7-109 END
BF#7-101
BF#7-100 START
WF#7-101
WF#7-102
WF#7-103
WF#7-104
WF#7-105
WF#7-106
WF#7-107
WF#7-108
WF#7-109
WF#7-110
WF#7-111
APPROX LIMIT OF GRADING
EXISTING MBTA ROW
ZONE A FLOOD LIMIT (NO BFE)
HEADWALL EL=132.06 12"CMP
HEADWALL EL=132.72 12"CMP
CONC HEADWALL EL=129.14
CONC BOUND DRILL HOLE (FND)
STEEL GUARDRAIL
EXISTING 8"WATER
EXISTING 4"GAS
EXISTING 8"WATER
EXISTING OVERHEAD WIRE
EDGE PVMT
DYL
UPL 31'-14"
UPL 9'
UPL ABAN
WOODED
STONE WALL
BIT. DRIVE
TRAILROAD TRACKS
RAILROAD TRACK
6"PINE
24"DEC
13"DEC
15"DEC
36"DEC
0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	26	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

Plotted on 16-Nov-2016 2:48 PM

608164_HD(GEN).DWG

N/F
EAST GEORGE H JR & MARIE A
108 PANTRY RD
D10-0503
BOOK 15083 PAGE 236

N/F
EAST GEORGE H JR & MARIE A
108 PANTRY RD
D10-0503
BOOK 15083 PAGE 236

APPROX LIMIT OF GRADING
EXISTING MBTA ROW
STONE BOX CULVERT
EL=134.77' 2.7'H x 2.3'W
STREAM
PROP 10' SUP
CONST B
PROP 3' SHLD
N 20° 59' 52" E 1214.30'
STONE BOX CULVERT
EL=134.27' 3'H x 2'W
BF#7-200 START
BF#7-205 END
WF#7-215 END
WIRE FENCE
WIRE FENCE (REMNANTS)
RAILROAD TRACKS
UPL ABAN
UPL REMNANTS

CONTINUED ON SHEET NO. 25

CONTINUED BELOW

0 20 50 100
SCALE: 1" = 20'

N/F
TOWN OF SUDBURY
0 PANTRY RD
D10-0022
BOOK 13482 PAGE 555

N/F
ILLIANO TARA & MAGAZU RICHARD
122 PANTRY RD
D10-0502
BOOK 59281 PAGE 548

N/F
TOWN OF SUDBURY
0 PANTRY RD
D10-0022
BOOK 13482 PAGE 555

APPROX LIMIT OF GRADING
EXISTING MBTA ROW
PROP 10' SUP
CONST B
PROP 3' SHLD
WOOD FENCE POST
METAL FENCE POST
RUSTED FENCE POST
CONCRETE BOUNDS
ROW BOUNDS
FENCE POST REMNANTS
WF#7-200 START
WF#7-315 END

CONTINUED ABOVE

CONTINUED ON SHEET NO. 27

0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	27	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

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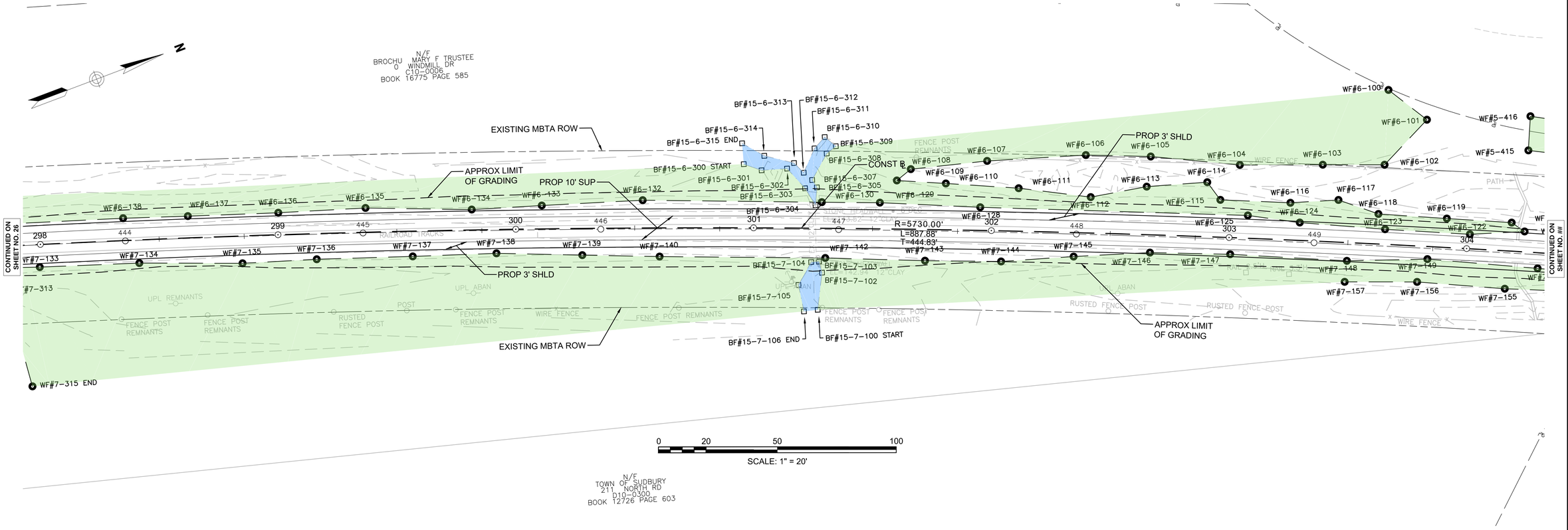

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	28	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:48 PM

CONTINUED ON SHEET NO. ##

CONTINUED ON SHEET NO. 29

CONTINUED ON SHEET NO. ##

WINDMILL DRIVE

NORTH RD (RTE 117)

EXISTING MBTA ROW

APPROX LIMIT OF GRADING

CONST ℄

PROP 10' SUP

PROP 3' SHLD

EXISTING 2"GAS

EXISTING 8"WATER

EXISTING OVERHEARD WIRE

EXISTING 4"GAS

EXISTING 12"WATER

STONE MASONRY RETAINING WALL

CONCRETE SIDEWALK

BIT WALK

EDGE PVMT

SWL

DYL

CCB

CROSSWALK

CONC HEADWALL

WIRE FENCE

METAL FENCE POST

PATH

RAILROAD TRACKS

BIT APRON

BROKEN BIT DRIVE

GRASS

UPL 178

UPL 177

POPE BRIAN E & FORD J WINDMILL DR C10-0001 BOOK 46753 PAGE 241

GALANTE GORDIANO & CLOUGH TIMOTHY F RD C10-0020 BOOK 12544 PAGE 611

N/F NORMAN JOHN C & DORIS 0 NORTH RD C10-0013 BOOK 13793 PAGE 342

N/E TOWN OF SUDBURY 0 CONCORD RD D10-0018 BOOK 12754 PAGE 314

N/F TOWN OF SUDBURY 0 CONCORD RD D10-0008 BOOK 12754 PAGE 314

N/F NORMAN JOHN C & DORIS 0 NORTH RD C10-0013 BOOK 13793 PAGE 342

R=500.00' L=112.59' T=56.54'

R=150.00' L=40.32' T=20.28'

R=100.00' L=44.94' T=22.86'

PCC +88.93

PT +42.87

PC +65.37

N 17° 01' 41" E 22.50'

RC +97.92

PT +05.69

+98.54 PT

SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	29	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:48 PM

N/F
NORMAN JOHN C & DORIS
0 NORTH RD
C10-0013
BOOK 13793 PAGE 342

N/F
FAIRVIEW DEVELOPMENT CORP
0 NORTH RD
C10-0009
BOOK 11659 PAGE 136

N/F
FAIRVIEW DEVELOPMENT CORP
0 NORTH RD
C10-0401
BOOK 9512 PAGE 83

N/F
FAIRVIEW DEVELOPMENT CORP
0 NORTH RD
C10-0401
BOOK 9512 PAGE 83

N/F
NORMAN JOHN C & DORIS
0 NORTH RD
C10-0012
BOOK 13793 PAGE 342

N/F
FAIRVIEW DEVELOPMENT CORP
0 NORTH RD
C10-0009
BOOK 11659 PAGE 136

CONTINUED ON SHEET NO. 28

CONTINUED BELOW

CONTINUED ABOVE

CONTINUED ON SHEET NO. 30

WF#4-100 START
WF#4-101
WF#4-102
WF#4-103
WF#4-104
WF#4-105
WF#4-106
WF#4-107
WF#4-108 END
CONST ℄
APPROX LIMIT OF GRADING
EDGE OF WATER
BF#4-100 START
BF#4-101
BF#4-103
BF#4-106
BF#4-107
BF#4-108
BF#4-109
BF#4-110
PROP 10' SUP
PROP 3' SHLD
EXISTING MBTA ROW
EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 139.1)
EDGE OF BORDERING LAND SUBJECT TO FLOODING (ELEV 140.7)
WF#5-111
WF#5-110
WF#5-109
WF#5-108
WF#5-107
WF#5-106
WF#5-105
WF#5-104
WF#5-103
WF#5-102
WF#5-101
BF#5-100 START
BF#5-101
BF#5-102 END
BF#3-100 START
BF#3-101
BF#3-102
BF#3-103
BF#3-104
BF#3-107
BF#3-108
BF#3-109 END
WF#3-100 START
WF#3-101
WF#3-102
WF#3-103
WF#3-104
WF#3-105 END
455 456 457 458 459 460 461
310 311 312 313 314 315
RAILROAD TRACKS
WIRE FENCE
CULVERT (UNDER WATER)
EL=136.43' 24"Rx2.5"W
CULVERT (BLOCKED & BURIED)
EL=133.21' 24"Rx2.5"W
INV 24" RCP
EL=134.49' 24"RCP
INV 24" RCP
EL=134.29' 24"RCP
EXISTING 24"RCP
100 BZ
0 20 50 100
SCALE: 1" = 20'

WF#3-100 START
APPROX LIMIT OF GRADING
EXISTING MBTA ROW
PROP 10' SUP
PROP 3' SHLD
CONST ℄
N 32° 25' 44" E 1886.85'
WOODS
WIRE FENCE
RAILROAD TRACKS
ULT w/RISERS
BUSH
EDGE PVMT
UPL OLD UPL #6
315 316 317 318 319 320 321
461 462 463 464 465 466
26"DEC
28"DEC
34 DEC
47DEC
15"DEC
6"PINE
3"PINE
4"PINE
5"PINE
10"PINE
0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	30	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

608164_HD(GEN).DWG Plotted on 16-Nov-2016 2:49 PM

N/F
FAIRVIEW DEVELOPMENT CORP
0 NORTH RD
C10-0401
BOOK 9512 PAGE 83

N/F
FAIRVIEW DEVELOPMENT CORP
206 NORTH RD
C10-0400
BOOK 45910 PAGE 223

N/F
TOWN OF SUDBURY
148 NORTH RD
C11-0301
BOOK 21736 PAGE 272

N/F
MAURER BRUCE D & F JEFFREY
0 NORTH RD
C10-0402
BOOK 45910 PAGE 223

CONTINUED ON SHEET NO. 29
CONTINUED BELOW
CONTINUED ABOVE
CONTINUED ON SHEET NO. 31

APPROX LIMIT OF GRADING
EXIST CATTLE CROSSING
EXISTING MBTA ROW
PROP 10' SUP
CONST ℄
PROP 3' SHLD
POND
ULT w/RISERS
BUSH
EDGE PAINT
BOULDER
WOODS
RAILROAD TRACK
BRIDGE ABUTMENT
BRIDGE DECK
LEDGE OUTCROP
WIRE FENCE
HOUSE
WOOD FENCE
PLASTIC MH
STONE BOUND WITH DRILL H (FND)
UPL REMNANTS
6"DEC
100'BZ

WF#2-135
WF#2-134
WF#2-133
WF#2-132
WF#2-131
WF#2-130
WF#2-129
WF#2-128
WF#2-127
WF#2-126
WF#2-125
WF#2-124
WF#2-123
WF#2-122
WF#2-121
WF#2-120
WF#2-119
WF#2-118
WF#2-117
WF#2-116
WF#2-115
WF#2-114
WF#2-113
WF#2-112
WF#2-111
WF#2-110
WF#2-109
WF#2-108
WF#2-107
WF#2-106
WF#2-136 END
WF#1-112 END
WF#1-111
WF#1-110
WF#1-109

BF#2-205
BF#2-204
BF#2-203
BF#2-206
BF#2-202
BF#2-201
BF#2-207
BF#2-208 END
BF#2-200 START

EDGE OF WATER

PC +52+22.54
R=5730.00'
L=305.92'
T=153.00'
PT +61+98.46

0 20 50 100
SCALE: 1" = 20'

SUDBURY
BRUCE FREEMAN RAIL TRAIL

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	31	XX
PROJECT FILE NO.	608164		

CONSTRUCTION PLANS

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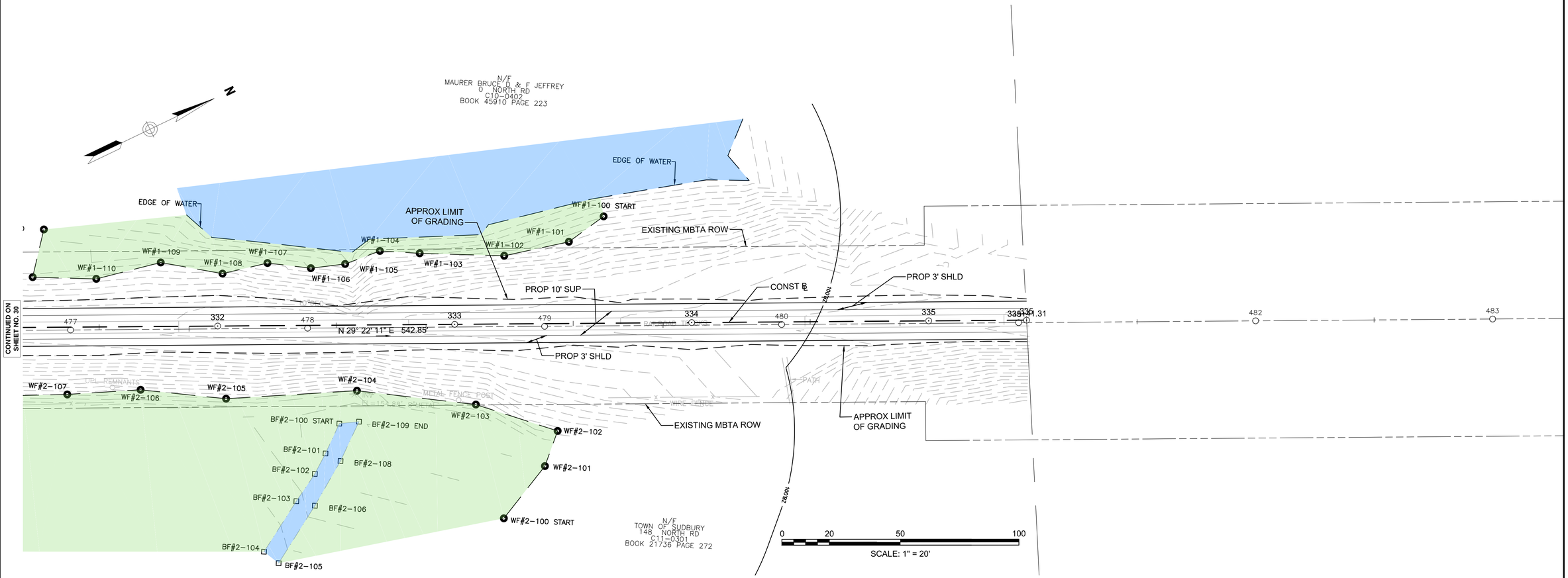


Appendix B PRELIMINARY IMPACT TABLES

SUMMARY QUANTITY SHEET

FROM EARTHWORKS SHEETS:

Elevation	Fill FLP (CY)	Cutting FLP (CY)
173.3'-174.3'	2.93	72.77
172.3'-173.3'	0.09	0.00
TOTALS:	**3.02 CY**	**72.77 CY**

Sections with Floodplain

Sta 116+00 to Sta 132+00	No Impacts
Sta 195+00 to 201+50	Impacts
Sta 263+50 to Sta 266+00	No Impacts
Sta 311+00 to 314+50	No Impacts

Calculated by: MAD
Checked by: JCR 6/17

EARTHWORK QUANTITY SHEET

FILL FLOOD PLAIN

Station	Length (ft)		Fill Area (sf) 173.3'-174.3'	Avg Fill Area (sf)	Fill Vol (cy)		Fill Area (sf) 172.3'-173.3'	Avg Fill Area (sf)	Fill Vol (cy)
195+00			0.00				0.00		
195+50	50		0.00	0.0	0.00		0.00	0.0	0.00
196+00	50		0.00	0.0	0.00		0.00	0.0	0.00
196+50	50		0.00	0.0	0.00		0.00	0.0	0.00
197+00	50		0.00	0.0	0.00		0.00	0.0	0.00
197+50	50		0.00	0.0	0.00		0.00	0.0	0.00
198+00	50		0.23	0.1	0.21		0.00	0.0	0.00
198+50	50		0.11	0.2	0.31		0.00	0.0	0.00
199+00	50		0.06	0.1	0.16		0.00	0.0	0.00
199+50	50		0.00	0.0	0.06		0.00	0.0	0.00
200+00	50		1.08	0.5	1.00		0.05	0.0	0.05
200+50	50		0.02	0.6	1.02		0.00	0.0	0.05
201+00	50		0.00	0.0	0.02		0.00	0.0	0.00
201+50	50		0.16	0.1	0.15		0.00	0.0	0.00
				TOTAL:	**2.93**			TOTAL:	**0.09**

Calculated by: MAD
Checked by: JCR 6/17

EARTHWORK QUANTITY SHEET

CUT FLOOD PLAIN

Station	Length (ft)		Cut Area (sf) 173.3'-174.3'	Avg Cut Area (sf)	Cut Vol (cy)		Cut Area (sf) 172.3'-173.3'	Avg Cut Area (sf)	Cut Vol (cy)
195+00			0.00				0.00		
195+50	50		0.00	0.0	0.00		0.00	0.0	0.00
196+00	50		0.00	0.0	0.00		0.00	0.0	0.00
196+50	50		0.00	0.0	0.00		0.00	0.0	0.00
197+00	50		5.99	3.0	5.55		0.00	0.0	0.00
197+50	50		7.52	6.8	12.51		0.00	0.0	0.00
198+00	50		7.62	7.6	14.02		0.00	0.0	0.00
198+50	50		6.76	7.2	13.31		0.00	0.0	0.00
199+00	50		6.44	6.6	12.22		0.00	0.0	0.00
199+50	50		4.36	5.4	10.00		0.00	0.0	0.00
200+00	50		0.00	2.2	4.04		0.00	0.0	0.00
200+50	50		0.36	0.2	0.33		0.00	0.0	0.00
201+00	50		0.19	0.3	0.51		0.00	0.0	0.00
201+50	50		0.11	0.2	0.28		0.00	0.0	0.00
				TOTAL:	**72.77**			TOTAL:	**0.00**

Calculated by: MAD
Checked by: JCR 6/17

Bordering Vegetated Wetland (BVW) Impacts

Wetland Flag Number	Wetland Impact Type		Station
	Temporary (sq. ft.)	Permanent (sq. ft.)	
1			
2			
3			
4	7	0	Sta 307+80 to 311+65 LT
5	28	1	Sta 305+40 to 312+90 RT
6	708	93	Sta 285+70 to 304+35 LT
7	2490	910	Sta 284+60 to 304+95 RT
8			
9	6	0	Sta 282+15 to 283+50 RT
10			
11			
12			
13			
14			
15			
16	11	4	Sta 246+65 to 248+20 RT
17			
18			
19			
20			
21			
22			
23			
24	1	0	Sta 208+25 to 212+15 RT
25	9	0	Sta 207+00 to 212+50 LT
26	6	0	Sta 196+70 to 200+00 RT
27			Sta 196+25 to 200+00 LT
28			
29			
30			
31	332	0	Sta 169+25 to 172+50 LT
32			
33			Sta 140 LT - Potential Vernal Pool
33A			Sta 160 RT
34			
35			
36	5	0	Sta 103+25 to 107+75 LT & RT
36			Sta 188+75 to 189+40 RT (SURVEYED BY OTHERS)
37			Potential Vernal Pool
38	3	0	
39			

Bordering Vegetated Wetland (BVW) Impacts			
Wetland Flag Number	**Wetland Impact Type**		**Station**
	Temporary (sq. ft.)	Permanent (sq. ft.)	
40			
41			
42	64	3	Sta 275+70 to 280+55 RT
PROJECT	**3670**	**1011**	**4,681**

Bank Impacts

Bank Flag Number	Bank Impact Type				Station
	Temporary (ln. ft.)	Temporary (sq. ft.)	Permanent (ln. ft.)	Permanent (sq. ft.)	
1					
2					
3					
4					
5					
6	6	15	10	10	Sta 306+60 to 306+70 RT
7					
8					
9					
10					
11					
12					
13					Pantry Brook
14					Pantry Brook
15 - 6	3	1	0	0	Sta 301+10 to 301+40 LT
15 - 24	13	6	0	0	Sta 212+00 to 215+55 RT
16	5	7	8	4	Sta 247+20 to 247+30 RT
17					
18					
19					
20					
21					
22					
23	298	376	0	0	Sta 216+30 to 221+60 RT
24					
25					
26					
27					
28					
29					
30	1,380	4,180	29	64	Sta 167 to 174
31					
32					
33					Sta 140 LT - Potential Vernal Pool
33A					Sta 160 RT
34					
35					
36					
37					Potential Vernal Pool
38					
39					

Bank Impacts

Bank Flag Number	Bank Impact Type				Station
	Temporary (ln. ft.)	Temporary (sq. ft.)	Permanent (ln. ft.)	Permanent (sq. ft.)	
40					
41					
42					
PROJECT	**1705**	**4585**	**47**	**78**	

To: Jodie Kablack – Town of Sudbury Date: May 22, 2015

Project #: 12984.00

From: Meghan Selby, Environmental Scientist Re: Vernal Pool Investigation

Memorandum

This memorandum describes the results of a field investigation that was conducted along the proposed Bruce Freeman Rail Trail (BFRT) corridor on April 24, 2015. The investigation included verifying the presence or absence of egg masses or individuals of obligate vernal pool species within certified and potential vernal pools along the BFRT corridor (Figure 1).

The *Existing Conditions Survey Plan at Proposed Rail Trail in Sudbury, Mass.,* prepared by Atlantic Engineering & Survey Consultants Inc., dated June 30, 2008, was used as the base for the vernal pool investigation (Attachment A). The plan set identified a single certified vernal pool (CVP), numerous potential vernal pools (PVPs), a single Sudbury vernal pool (SVP), and isolated wetlands. In addition to the previously identified areas the field team walked the corridor looking for any additional areas that had vernal pool characteristics. The following lists of vernal pool criteria were used as the basis for documenting areas along the corridor.

The results of the investigation are summarized in Table 1 and described in further detail the following sections.

Vernal Pool Criteria

The March 2009 *Guidelines for the Certification of Vernal Pool Habitat* (Guidelines) defines the Vernal Pool Certification Criteria based on biological and physical evidence.

Biological criteria include:

- Obligate species (wood frog (*Lithobates sylvaticus*), spotted salamander (*Ambystoma maculatum*), blue-spotted salamander (*A. laterale*), Jefferson salamander (*A. jeffersonianum*), and marbled salamander (*A. opacum*)
    - Wood frog chorusing
    - At least 5 pairs of mated wood frogs
    - At least 5 egg masses of either wood frogs or spotted salamanders
    - One egg mass of state-listed blue-spotted or Jefferson salamander
    - Mating adult salamanders
    - Salamander spermatophores
    - Salamander or wood frog larvae
    - Fairy shrimp (*Anostraca: Eubranchipus*)
- Facultative species (spring peeper, gray treefrog, American toad, Folwer's toad) – at least two species must be present.
    - Adult chorusing
    - At least 5 mated pairs
    - Any number of egg masses

101 Walnut Street
PO Box 9151
Watertown, MA 02472
P 617.924.1770

- Tadpoles

Physical criteria include evidence that there is a pool with no permanently flowing outlet (no culvert or stream). The Guidelines defines Vernal Pool Boundary as:

- A distinct and clear topographic break at the edge of a pool or
- The maximum observed or recorded extent of flooding, as evidenced by:
  - Leaf staining or other indicators of hydrology, or
  - The mean annual high water mark as observed in March through early April.

The *Sudbury Wetlands Administration Bylaw Regulations* (Revised August 11, 2014) further defines a vernal pool as:

> *any confined basin or depression not occurring in existing lawns, gardens, landscaped areas, or driveways which, at least in most years, holds water for a minimum of two continuous months during the spring and/or summer, contains at least 200 cubic feet of water at some time during most years, is free of adult predatory fish populations, and provides essential breeding and rearing habitat functions for amphibian, reptile, or other vernal pool community species.*

Results

Results from the investigation are summarized in the following table and described in greater detail in the following section.

Table 1. Vernal Pool Investigation Results Summary

ID	Between Stations	Water Depth (in)	Findings
PVP 1	468.00-468.50	<1	No VP species found.
PVP 2	453.00-457.00	24-48	No VP species found.
PVP 3	440.50-441.50	2-3	No VP species found.
PVP 4*	431.50-435.00	6-15	1 wood frog egg mass and 2 spotted salamander egg masses.
PVP 5*	427.50-429.25	2-12	No VP species found. 1 predacious diving beetle observed.
PVP 6*	418.00-419.00	2-6	No VP species found. Direct outlet to adjacent stream.
PVP 7	393.50-395.50	6-8	No VP species found. Limited opportunity for egg mass attachment.
PVP 8	389.00-390.50	2-3	No VP species found. Water was flowing through area instead of ponding due to topography.
SVP 9	376.50-377.50	2-5	No VP species found.
PVP 10	373.00-374.50	0	No VP species found. Area was dry at time of inspection.

ID	Between Stations	Water Depth (in)	Findings
PVP 11*	384.50-385.50	10-12	8 spotted salamander egg masses. Approx. 5 small (~4in) fish swimming near some of the egg masses.
PVP 12*	354.50-356.00	12-24	No VP species found. Limited opportunity for egg mass attachment.
CVP 13*	336.00-337.00	5-24	15+ blue spotted salamander, 15+ spotted salamander, and 10+ wood frog egg masses found.
PVP 14*	334.00-335.00	4-6	No VP species found.
PVP 15	284.50-286.50	4-18	1 wood frog egg mass found. No other signs of VP species.
PVP 16	254.50-255.50	2-10	No VP species found. (~10 wood frog egg masses found on 4/22/15)
PVP 17	254.50-256.00	0-6	No VP species found. Oil sheen present throughout isolated wetland.
PVP 18	249.00-254.00	0-12	No VP species found.
PVP 19	247.00-248.00	0	No VP species found. Area was dry at time of inspection.

*Areas within mapped priority and estimated habitat as provided by NHESP.

Based on the findings of the April 2015 survey of potential vernal pools along the proposed Bruce Freeman Rail Trail in Sudbury, only Potential Vernal Pools 4, 11, 15, and 16 are eligible for certification as Vernal Pools with the Natural Heritage and Endangered Species Program. Vernal Pool 13 is already certified and was confirmed with by our findings. Although a single wood frog egg mass was observed within Potential Vernal Pool 15, it would not meet NHESP certification requirements.

The following are photographs from the field investigation of each of the pools, and additional site specific notes.

Potential Vernal Pool Area 1 – Between Stations 468.00 and 468.50.

PVP 1 was within a larger wetland complex. The area does not appear to hold enough water long enough for VP species utilization. Water levels were less than 1 inch. No VP species were observed.

Potential Vernal Pool Area 2 – Between Stations 453.00 and 457.00.

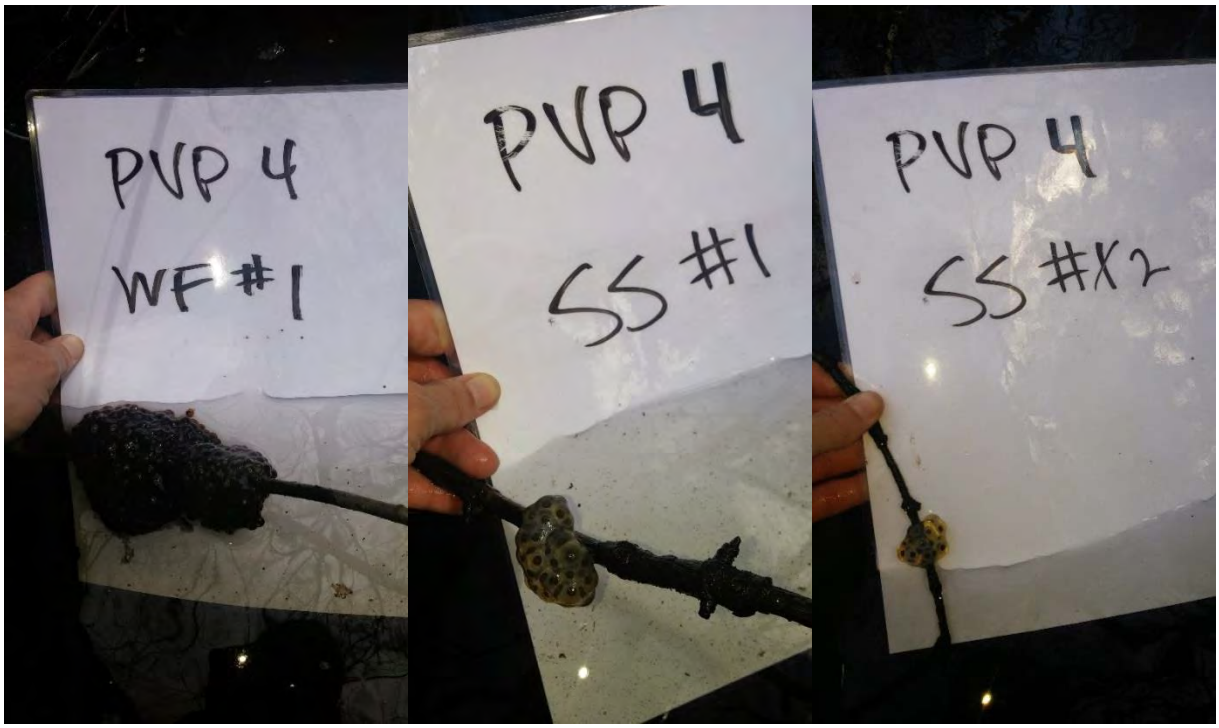
PVP 2 is part of a larger wetland complex. Water levels were to a depth of approximately 2 feet along the outer edge and up to 4 feet within the center of the pool. Despite the abundance of suitable egg laying locations (over hanging branches) no VP species or evidence of species was observed during the investigation.

Potential Vernal Pool Area 3 – Between Stations 440.50 and 441.50.

PVP 3 is a shallow and narrow depression that runs parallel to the rail bed. Water depths were 2-3 inches and no VP species were observed.

Potential Vernal Pool Area 4 – Between Stations 431.50 and 435.00.

PVP 4 is to the east of Pantry Road and on the western limit of the BFRT corridor. The pool had standing water ranging from 6 to 15 inches. High levels of iron were observed within the pool. Numerous branches were positioned along the edge of the pool, creating good egg mass attachment opportunities.



One wood frog and two spotted salamander egg masses were found within PVP 4. This area is within Priority Habitat of Rare Species (PH 617) and Estimated Habitat of Rare Wildlife (EH 543).

Potential Vernal Pool Area 5 – Between Stations 427.50 and 429.25.

PVP 5 is a narrow depression with shallow pockets of water along the fringes and up to 12 inches in the center. No VP species were observed within the pool. Clumps of algae were observed on some branches and within the deeper sections of the water. This area is within Priority Habitat of Rare Species (PH 617) and Estimated Habitat of Rare Wildlife (EH 543).

Potential Vernal Pool Area 6 – Between Stations 418.00 and 419.00.

PVP 6 is a shallow depression adjacent to a stream. Standing water within the depression ranged from 2 to 6 inches. No VP species were observed. This area is within Priority Habitat of Rare Species (PH 617) and Estimated Habitat of Rare Wildlife (EH 543).

Water within the PVP 6 area was actively draining into the adjacent stream at the time of the inspection.

Potential Vernal Pool Area 7 – Between Stations 393.50 and 395.50.

PVP 7 is a shallow depression with standing water ranging from 6 to 8 inches. The depression was approximately 10 feet at its widest point. No VP species were observed.

Potential Vernal Pool Area 8 – Between Stations 389.00 and 390.50.

PVP 8 is a shallow secondary channel adjacent to a well-defined stream. No VP species were observed.

PVP 8 had flowing water ranging from 2 to 3 inches deep before the confluence with the main stream channel.

Sudbury Vernal Pool 9 – Between Stations 376.50 and 377.50.

SVP 9 had approximately 2 to 5 inches of standing water. No permanent outlet was present. No VP species were observed.

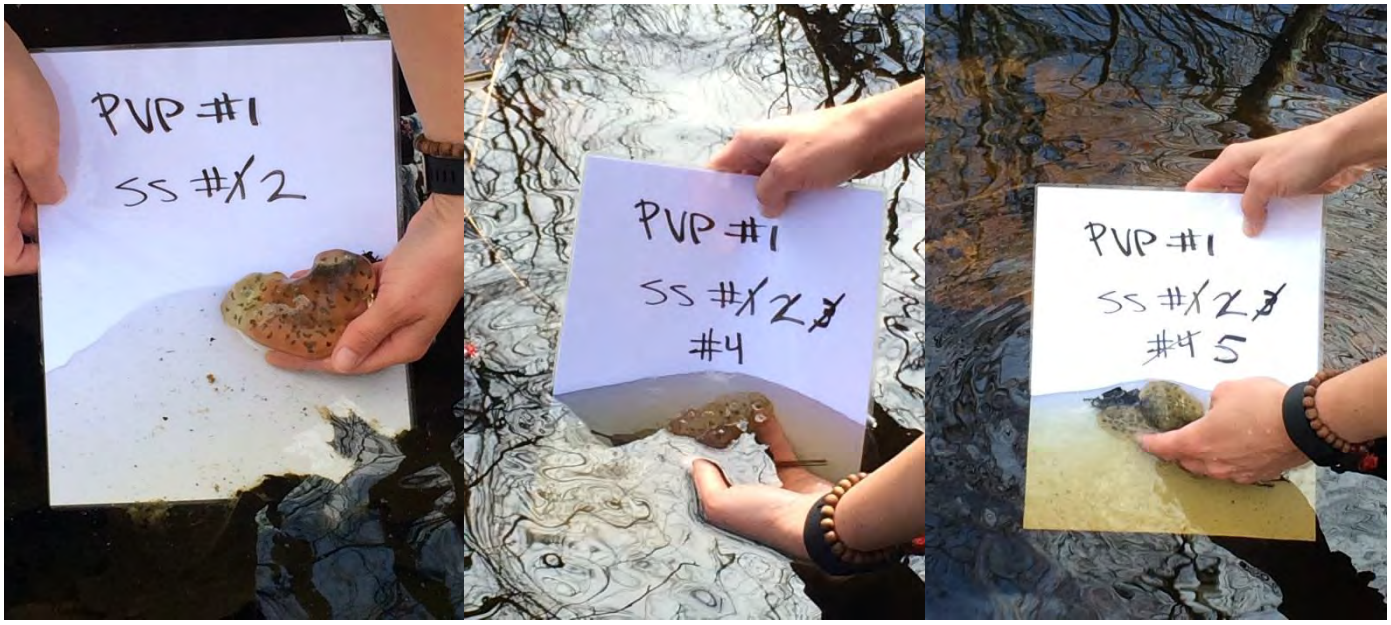
Potential Vernal Pool Area 10 – Between Stations 373.00 and 374.50.

PVP 10 is a channel like depression that runs along rail bed's the toe of slope. The area was dry at the time of inspection. Based on topography within this area it is unlikely that water ponds up for the requisite period of time for VP species to utilization. No VP species were found.

Potential Vernal Pool Area 11 – Between Stations 384.50 and 385.50.

PVP 11 is part of a larger wetland complex. The southern extent of the complex (as pictured above) had standing water between 10 and 12 inches.

The northern extent of the wetland complex (PVP 11) transitions into a wide channel and to the northeast a pond. Small fish approximately 4 inches in length were primarily observed within the larger channel area and a few were found swimming within a few feet of the spotted salamander egg masses.



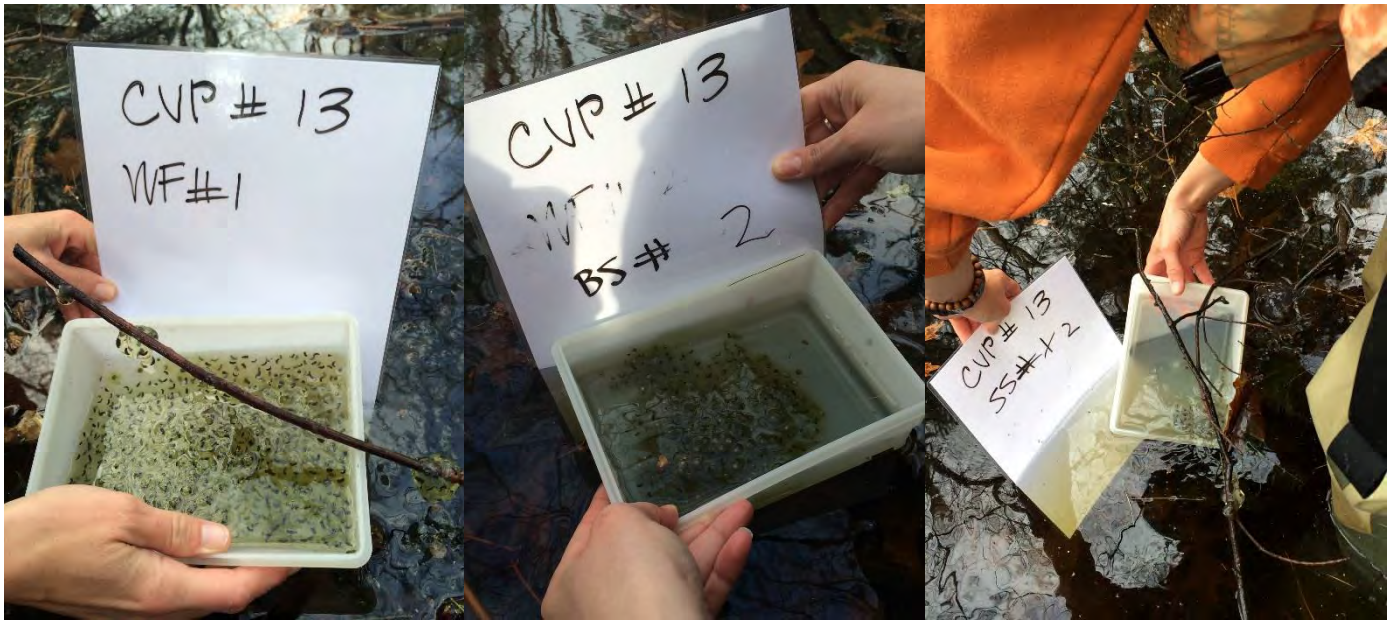
Eight spotted salamander egg masses were observed within PVP 11. These were localized within the southern extent of the wetland complex. This area is within Priority Habitat of Rare Species (PH 528) and Estimated Habitat of Rare Wildlife (EH 437).

Potential Vernal Pool Area 12 – Between Stations 354.50 and 356.00

PVP 12 is on the western side of the BFRT corridor, across from PVP 11. PVP 12 is a farm pond that has the potential to hold water through most of the year. Water depths were approximately 1 to 2 feet. There were little to no branches within the outer fringe of the pond along the eastern limit (within the ROW easement). No VP species were found. This area is within Priority Habitat of Rare Species (PH 528) and Estimated Habitat of Rare Wildlife (EH 437).

Certified Vernal Pool 13 – Between Stations 336.00 and 337.00.

CVP 13 is approximately 80 by 100 feet and had up to approximately 2 feet of standing water at the time of the inspection. This area is within Priority Habitat of Rare Species (PH 528) and Estimated Habitat of Rare Wildlife (EH 437).



Wood frog (10+), spotted salamander (15+), and blue-spotted salamander (15+) egg masses were found throughout the pool. A number of individual and clusters of 2-5 eggs were also found throughout and on the bottom of the pool.

Potential Vernal Pool Area 14 – Between Stations 334.00 and 335.00.

PVP 14 was holding approximately 4 to 6 inches of standing water at the time of inspection. This area is within Priority Habitat of Rare Species (PH 528) and Estimated Habitat of Rare Wildlife (EH 437). No VP species were found.

Potential Vernal Pool Area 15 – Between Stations 284.50 and 286.50.

PVP 15 is a narrow depression that is coincident with the rail bed's toe of slope. The center of the depression was holding approximately 18 inches of water at the time of inspection. One wood frog egg mass was found. No other VP species were observed.

Potential Vernal Pool Area 16 – Between Stations 254.50 and 255.50.

PVP 16 is within a constructed detention basin. At the time of inspection standing water reached depths of 10 inches in the southern extent and the basin was dry in the northern extent. No VP species were observed. An oil sheen was present on the surface of the water and small piles of snow and associated debris were present. During a flagging event on April 15, 2015 staff heard wood frog chorusing and noted multiple wood frog egg masses within the center of the pool.

Potential Vernal Pool Area 17 – Between Stations 254.50 and 256.00.

PVP 17 is an isolated wetland. The depression was holding up to 6 inches of water in the center. An oil sheen was present within the pool and no VP species were observed.

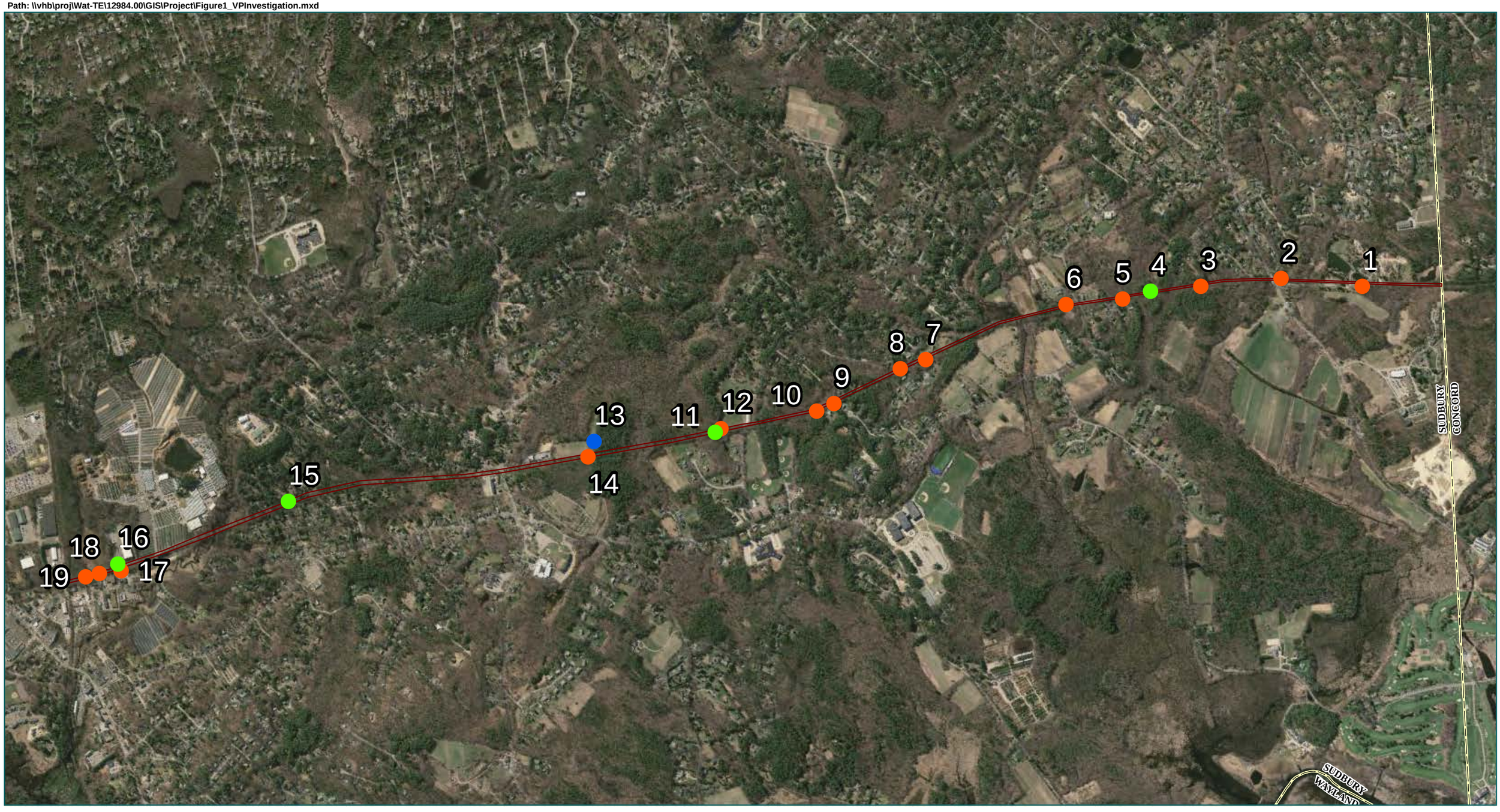
Potential Vernal Pool Area 18 – Between Stations 249.00 and 254.00.

PVP area 18 is part of a large cattail marsh wetland complex with a stream channel flowing through the center. The stream is carried under the rail road bed through a culvert and connects to a wetland on the eastern side of the alignment. The investigation was limited to the railroad easement and no VP species were found.

Potential Vernal Pool Area 19 – Between Stations 247.00 and 248.00

PVP 19 is an isolated wetland located to the west of the rail alignment. The area was dry at the time of the inspection and no VP species were found.

Path: \\vhb\proj\Wat-TE\12984.00\GIS\Project\Figure1_VPInvestigation.mxd



0 1,000 2,000 Feet

Legend

- Certified Vernal Pool
- Eligible to be Certified
- Non-Eligible to be Certified
- Bruce Freeman Rail Trail Corridor

vhb
Engineers | Scientists | Planners | Designers
101 Walnut Street, PO Box 9151, Watertown, MA 02471

Figure 1 – Site Location Map

Bruce Freeman Rail Trail
Sudbury, Massachusetts

SUDBURY BRUCE FREEMAN RAIL TRAIL
EXISTING CONDITIONS BASE SURVEY

RIGHT OF WAY ABUTTERS

ParcelID	Owner
C10– 0005	KING THOMAS M & REBECCA L
C10– 0009	FAIRVIEW DEVELOPMENT CORP
C10– 0010	NORMAN JOHN C & DORIS
C10– 0011	FAIRVIEW DEVELOPMENT CORP
C10– 0012	NORMAN JOHN C & DORIS
C10– 0013	NORMAN JOHN C & DORIS
C10– 0400	FAIRVIEW DEVELOPMENT CORP
C10– 0401	FAIRVIEW DEVELOPMENT CORP
C10– 0402	MAURER BRUCE D & F JEFFREY
C11 – 0301	TOWN OF SUDBURY
C11 – 0301– A– 02	CLEARY MARGARET
C11 – 0301– A– 04	DUARTE PATRICIA
C11 – 0301– A– 06	WILSON LUCIE
C11 – 0301– A– 08	LEVINE MILDRED & GRUNEBAUM LIN
C11 – 0301– A– 10	CERULO MARGARET
C11 – 0301– A– 12	SANTIAGO GLORIA R
C11 – 0301– A– 14	GASTAN LUDMILLA
C11 – 0301– A– 16	MCGRAW WILLIAM T & MARGERY E
C11 – 0301– A– 18	GODFREY BRENDA
C11 – 0301– A– 20	JAMES ELELTRAUD U
C11 – 0301– A– 22	BAHLKOW ADOLF & BARBARA
C11 – 0301– A– 24	LEWIS NANCY
C11 – 0301– A– 26	SPIRO CARMIN J & JACQUELINE
C11 – 0301– A– 28	ARONSON THERESA
C11 – 0301– A– 30	FARRELL MARGUERITE
C11 – 0301– A– 32	AUFDERHAAR JUDITH
C11 – 0301– A– 33	PERKINS VIRGINIA
C11 – 0301– A– 34	KREYNES SAMUIL & PENKINA INNA
C11 – 0301– A– 35	FRAZER VIRGINIA R &
C11 – 0301– A– 36	JANJANIAN MARY & ELEANOR
C11 – 0301– A– 37	FRAIZE JOHN & ELLEN
C11 – 0301– A– 39	INGERSOLL ROBERT & ELIZABETH
C11 – 0301– A– 41	FREYDIN YEVGENIA
C11 – 0301– A– 42	GALLIGAN FRANCES TRUSTEE
C11 – 0301– A– 43	SAWIN RUTH
C11 – 0301– A– 44	BARNEY ANNA MAE
C11 – 0301– A– 45	POCH GAIL B & NANCY F
C11 – 0301– A– 46	GARDINER MARIE S TRS.
C11 – 0301– A– 47	REZNIK MARK & HELEN
C11 – 0301 –A– 48	SULLIVAN LOUISE M
C11 – 0301 –A– 49	JACKSON SUSAN
C11 – 0301 –A– 50	HERZOG ANITA
C11 – 0301 –A– 51	NELSON MURIEL
C11 – 0301 –A– 52	MANN ESTHER & WALDMAN STUART
C11 – 0301 –A– 53	DIPALMA JAMES J & JANE M
C11 – 0301 –A– 54	GRUMAN LEONID N & ZINAIDA
C11 – 0301 –A– 55	CHIODO FRANK & LAURA
C11 – 0301 –A– 56	DELUCA IRIS F TRS
C11 – 0301 –A– 57	ANDERSON EUNICE GAY &
C11 – 0301 –A– 58	SHAER PETER &
C11 – 0301 –A– 59	MAGEE JOVANNA F TRS
C11 – 0301 –A– 60	KURAS CATHERINE M
C11 – 0301 –A– 61	MCNEIL MARCIA
C11 – 0301 –A– 63	GOLFMAN MARGARITA M & YOSEF
D10 – 0001	RICHARD ARTHUR J & MARGARET A
D10 – 0013	EAST GEORGE H JR &
D10 – 0018	TOWN OF SUDBURY
D10 – 0024	VROMAN RICHARD J & MICHELLE R
D10 – 0207	EN GERMAN JEFFREY M
D10 – 0300	TOWN OF SUDBURY
D10 – 0400	LYMAN LYNDEN & KRISTIN E
D10 – 0502	CERASUOLO DOMENIC & JOAN M
D10 – 0503	EAST GEORGE H JR & MARIE A
E09 – 0507	WALLACK ALLAN L & NADINE
E09 – 0508	WALLACK ALLAN L & NADINE
E09 – 0509	GLOVSKY CHARLES S & EILEEN G
E09 – 0510	WRY CHARLES A JR & RUTHANN
E09 – 0511	NEISON C KIRK DIANE P
E09 – 0600	ROCKLAGE SCOTT M & PATTY B
E10 – 0700	VERRILL STEPHEN & JOAN
F09 – 0001	TOWN OF SUDBURY

ParcelID	Owner
F09 – 0002	HAYNES HONORA
F09 – 0003	SHEDD MATTHEW D & CAROL A
F09 – 0004	HAYNES HONORA
F09 – 0006	TOWN OF SUDBURY
F09 – 0218	CRARY MINER A & HELEN H
F09 – 021 9	SIMONSEN JORN & MIA
F09 – 0415	WONG JEAN E & ARTHUR P
F09 – 0515	WINNEG ROBERT D & CAROLINE V
F09 – 0516	HERZOG LOUIS J & ROBIN
F09 – 0517	SALVIA PETER M & SUSAN W
F09 – 0518	MUELLER KATHRYN E &
F10 – 0511	FREEDMAN JON R &
F10 – 0512	MCDERMOTT ROBERT F
F10 – 0514	LINNEG ROBERT D & CAROLINE V
G09 – 000 2	TIGHE LAWRENCE W TRS THE HUDSO
G09 – 0003	HOWE JANET R REVOCABLE TRUST
G09 – 0004	MCCARTHY LAURA B TRUSTEE
G09 – 0012	PENN CENTRAL TRANSPORTATION CO
G09 – 0100	BARTLETT DOROTHY M&MCCARTHY
G09 – 0200	TOWN OF SUDBURY
G09 – 0300	ABRAMS LAURA B TRS
G09 – 0807	RICHARDS JAMES C & SUSAN M
G09 – 0808	WOL IN STEVEN M & MAUREEN G
H08 – 0008	WEAVER JAMES C & MELANIE B
H08 – 0011	CHO CHONG M & WAI–WAI
H08 – 0012	WOLLENSAK RICHARD J & CLAIRE A
H08 – 0015	ENSLEY MICHAEL T & LAURIE A
H08 – 0016	ALTERIO DINO R & ROACH MAUREEN
H08 – 0017	THOMPSON MARY L
H08 – 0018	WALLETT RAYMOND J &THELMA SOSA
H08 – 0019	GOLS – CAVALLARO JENNI
H08 – 0020	DIMAURO MIRIAM
H08 – 0021	BOND JOHN T & MARY A
H08 – 0045	BORG CARL G & MARIAN A
H08 – 0301	NEWTON ALAN L & TH ERESA W
H08 – 0310	NIGRELLI JAMES J JR &
H08 – 0311	KNEELAND WILLIAM E JR & ELAINE
H08 – 0312	MCCLURE CHRISTOPHER &
H08 – 0313	OSTAR BRUCE & SHPRESA
H09 – 0001	LEWIS ANDREW J & STEPHANIE O
H09 – 0002	SOMERSET SUDBURY LLC
H09 – 0007	SHILTS REED L & DAWN R
H09 – 0012	SUDBURY VALLEY TRUSTEES INC
H09 – 0068	GILMARTIN MATTHEW S & MOLLY F
J08 – 0004	CODJER LANE LLC
J08 – 0006	CAVICCHIO PAUL F JR
J08 – 0009	SUDBURY TOWN OF
J08 – 0011	PENDLETON DAVID B & CAROLE E
J08 – 0101	KREBS W MICHAEL & BARBARA P
J08 – 0111	LANZA MARK J &
J08 – 0112	MURPHY GREG C & JENNIFER B
J08 – 0113	HARTY DANIEL P
J08 – 0114	LEU JAMES C JR & TRACY GEHAN
J08 – 0115	ROBINS D JOAN
J08 – 0116	SHAW JOHN J & ANN C
J08 – 0301	JONES CHERYL
J08 – 0307	DAVIES ADRIAN G & MELINDA J
J08 – 0308	RODDY JANE HIGHTOWER
J08 – 0309	MARCELYNAS GARY E & LESLIE A
J08 – 0311	CUNNINGHAM MICHAEL & JEAN
J08 – 0501	CAVICCHIO PAUL F JR
J08 – 0502	CAVICCHIO PAUL F JR
J08 – 0503	CAVICCHIO PAUL F JR
K08 – 0050	TUCKER EDWARD L & SANDRA A TR
K08 – 0051	COTTON JORDAN L&MCIVER CLEMENT
K08 – 0052	TUCKER SANDRA A
K08 – 0053	BOSEKY LIMITED
K08 – 0055	MCCARTHY LAURA B ET AL TRUSTEE
K08 – 0057	PASQUARELLO THEODOR
K08 – 0087	MCIVER CLEMENT L TR

SITE NOTES

1. TOPOGRAPHY, PROPERTY LINE INFORMATION AND SITE FEATURES WERE OBTAINED FROM AN ON THE GROUND SURVEY BY ATLANTIC ENGINEERING PERFORMED BETWEEN MARCH AND JUNE OF 2008.

2. THE LOCATIONS OF ALL EXISTING UTILITIES ARE TAKEN FROM EXISTING AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE. THERE MAY BE EXISTING LINES OTHER THAN THOSE SHOWN HEREON. THE CONTRACTOR SHALL BE REQUIRED TO CONTACT THE PROPER UTILITY COMPANIES AND DIG–SAFE PRIOR TO BEGINNING ANY CONSTRUCTION ON THE SITE. OUR FIRM DOES NOT WARRANT WARRANT OR GUARANTEE THE LOCATION OF ANY UTILITIES SHOWN HEREON.

3. ALL ELEVATIONS REFER TO NORTH AMERICAN VERTICAL DATUM (NAD83) OF 1983. FROM NGVD OF 1929 USING "VERTCON" FROM THE NGS/NOAA.GOV WEB SITE.

4. WETLANDS FLAGS DEMARCATING WETLAND RESOURCE AREAS WERE DELINEATED MARCH THROUGH MAY OF 2008 BY:

WETLANDS & LAND MANAGEMENT, INC.
DANVERS, MASSACHUSETTS

5. PER THE COMMONWEALTH OF MASSACHUSETTS REPORTABLE HAZARDOUS RELEASE LOOKUP WEB SITE THERE ARE NO OPEN SITES WITHIN 100 FEET OF THE LOCUS.

PROPERTY LINE NOTES

1. THE BOUNDARY LINES OF THE RAILROAD RIGHT OF WAY ARE DETERMINED FROM THE 1915 VALUATION PLANS FOR THE OLD COLONY RAILROAD COMPANY AND FROM CENTERLINE MONUMENTS FOUND ON THE GROUND. WHERE THE RIGHT OF WAY IS INDICATED TO BE WIDER THAN 66 FEET THE LOCATION OF THE BOUNDARIES ARE DETERMINED FROM ADJACENT DEEDS AND PLANS OF RECORD.

2. THE LOCATIONS OF PROPERTY LINES OF OWNERS ABUTTING THE RAILROAD WERE DETERMINED FROM AVAILABLE DEEDS AND PLANS OF RECORD AND SHOULD BE CONSIDERED APPROXIMATE. NO BOUNDARY LINE DETERMINATIONS OF LANDS ABUTTING THE RAILROAD RIGHT OF WAY WERE PERFORMED AS PART OF THIS SURVEY.

3. THE LOCATIONS OF STREET LINES CROSSING THE RAILROAD WERE DETERMINED FROM AVAILABLE DEEDS AND PLANS OF RECORD AND SHOULD BE CONSIDERED APPROXIMATE. NO BOUNDARY LINE DETERMINATIONS OF THESE STREET RIGHTS OF WAY WERE PERFORMED AS PART OF THIS SURVEY.

BENCHMARK NO:	DESCRIPTION	NAD88 ELEV.	NGVD ELEV.
1	RM 2–3	133.07	133.85
2	10060	139.94	140.77
3	10061	173.58	174.36
4	38G (7448)	168.65	169.43
5	RM 6–1	141.73	142.51

MONUMENT DESCRIPTIONS

RM 2–3 CHISELED SQUARE ON NORTHERLY CORNER OF WEST HEADWALL OF BOX CULVERT UNDER PANTRY ROAD/RAILROAD

10060 (STA 364) CHISELED SQUARE ON MILE POST 18

10061 (STA 365) CHISELED SQUARE ON BOULDER

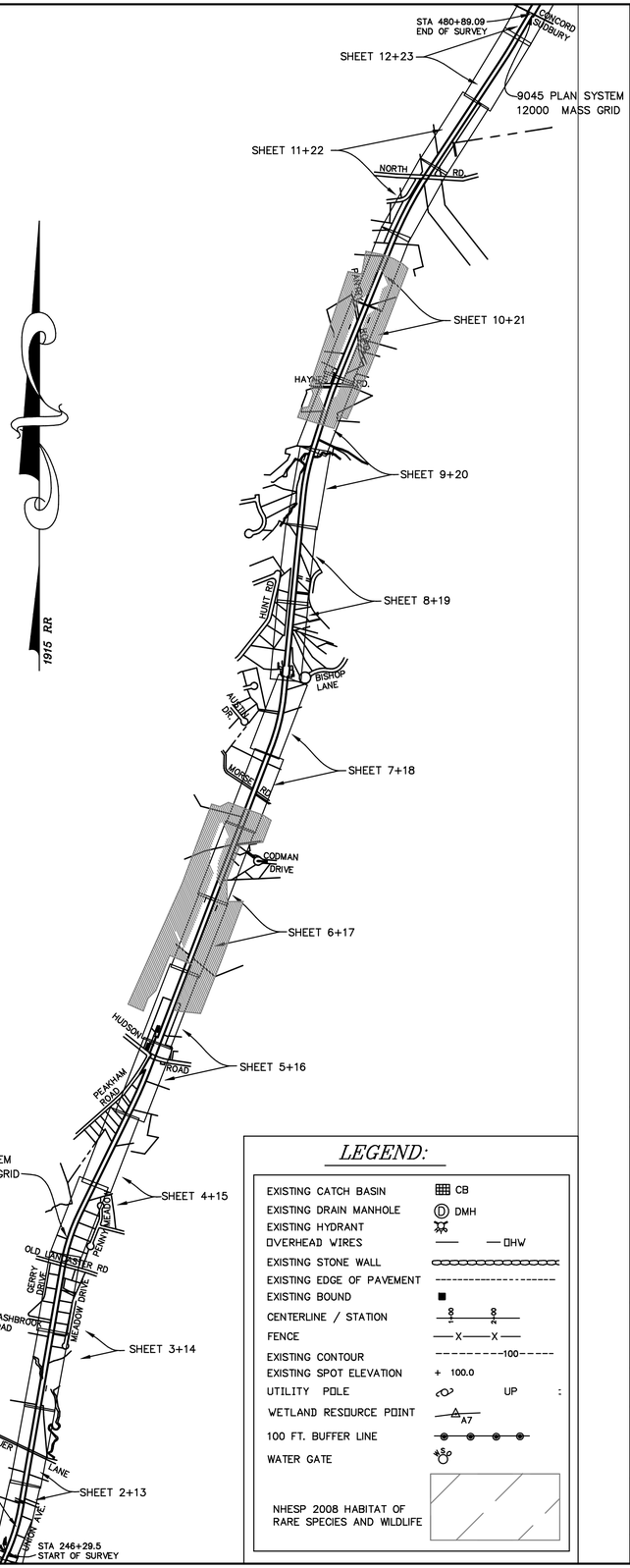
RM 6–1 CHISELED SQUARE IN SOUTHEAST CORNER OF SOUTH ABUTMENT OF RAILROAD BRIDGE OVER HOP BROOK

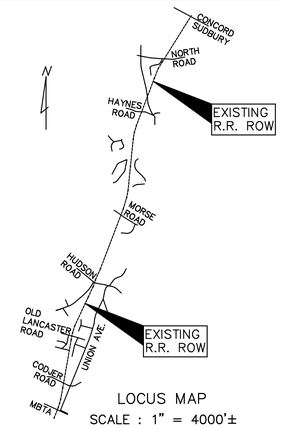
38G MAGNETIC DISK IN CONCRETE MONUMENT

38F MAGNETIC DISK IN CONCRETE MONUMENT

Point numbers and Coordinates on Plan System			
Point	Northing	Easting	Description
9045	29364.49	13493.99	STA 480+89.09
34	11909.36	6888.17	MON 38G
14	7793.77	6172.94	MON 38F
9001	7397.92	6008.08	STA 246+29.5

Point numbers and Coordinates on Mass Grid System			
Point	Northing	Easting	Description
12000	518901.93	627845.26	STA 480+89.09
12001	501324.34	621572.57	CONTROL 38G
12002	497195.89	620935.73	CONTROL 38F
12003	496796.98	620778.42	STA 246+29.5





LOCUS MAP
SCALE : 1" = 4000'±

LEGEND:

EXISTING CATCH BASIN — CB
EXISTING DRAIN MANHOLE — DMH
EXISTING HYDRANT
OVERHEAD WIRES — OHW
EXISTING STONE WALL
EXISTING EDGE OF PAVEMENT
EXISTING BOUND
CENTERLINE / STATION
FENCE — X — X —
EXISTING CONTOUR — 100 —
EXISTING SPOT ELEVATION + 100.0
UTILITY POLE — UP
WETLAND RESOURCE POINT — A7
100 FT. BUFFER LINE
WATER GATE
NHESP 2008 HABITAT OF RARE SPECIES AND WILDLIFE

SURVEY NOTES

PORTIONS OF THE BANK OF HOP BROOK AND PANTRY BROOK COULD NOT BE ESTABLISHED ON TOWN LAND AS THE AREA WAS UNDER WATER AT THE TIME OF THE RESOURCE DELINEATION.

THE CONTOUR INTERVAL ON THE PLAN IS 1 FOOT. SOME CONTOURS ARE NOT LABELLED DUE TO THE SCALE OF THE PLAN AND THE STEEPNESS OF THE GROUND SLOPE.

TREES NOTATED AS "TREE GREATER THAN 8" (TYP)" REPRESENT THE FIELD LOCATED TREE NEAREST TO THE EXISTING RAIL LINES.

DRAWING FILE: RAILTRAILfinal2–gps2
ATLANTIC JOB NO. A0801–02

I CERTIFY THAT THIS PLAN WAS PREPARED UNDER MY DIRECT SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF IT CONFORMS WITH TECHNICAL, ETHICAL AND PROCEDURAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.

COMMONWEALTH OF MASSACHUSETTS
JOHN B. PAULSON
No. 31725
PROFESSIONAL LAND SURVEYOR

JUNE 30, 2008
Date

ENGINEER:
ATLANTIC ENGINEERING & SURVEY CONSULTANTS INC.
97 TENNEY STREET – SUITE 5 – GEORGETOWN, MA 01833
PHONE: 978–352–7870 FAX: 978–352–9940

EXISTING CONDITIONS SURVEY PLAN AT PROPOSED RAIL TRAIL IN SUDBURY, MASS.

PREPARED FOR: TOWN OF SUDBURY
275 OLD LANCASTER ROAD
SUDBURY, MA 01776

DATE: JUNE 30, 2008 (1ST SUBMISSION)

Submission #	date	description
2	7/23/2008	Site Plan with TOPO
3	3/18/2009	REVISIONS
4	7/28/2009	PROFILE

Scale: 1"= 1000'
1000 0 1000 2000

SHEET 1 OF 23

J8/087

EXISTING BLDG

AREA NOT FLAGGED BECAUSE "OWNER" TOLD BOTANIST NOT TO.

ASSESSOR MAP/PARCEL (TYP.)

J8/501

LIMIT OF WETLAND RESOURCE AREA (TYP.) SEE REPORT

100' BVW BUFFER

100' BVW BUFFER

WALL

GRAVEL DR. (TYP.)

100' BVW BUFFER

PAVING

GEOTEXTILE MAT

GEOTEXTILE MAT

TREE GREATER THAN 8" (TYP.)

GRAVEL DR. (TYP.)

TREE LINE (TYP.)

100' BVW BUFFER

200' RIVERFRONT

200' RIVERFRONT AREA

AREA NOT FLAGGED BECAUSE "OWNER" TOLD BOTANIST NOT TO.

K8/050

J8/502

CB R=141.08

CB R=141.67 INV=137.67(24")

CODJER LANE

1915 RR

100' BVW BUFFER

J8/006

AREA NOT FLAGGED BECAUSE "OWNER" TOLD BOTANIST NOT TO.

WOODED AREA WITHIN R.R. RIGHT OF WAY

200' RIVERFRONT

12" DIAMETER PVC PIPE DRAINAGE THROUGH BERM FROM GROWING FIELD. INV. ELEV. 137.5'± (TYP.)

200' RIVERFRONT AREA

GEOTEXTILE MATS

R.R. MILE MARKER

MH-21

ROW OF 10"-12" PINE TREES

GEOTEXTILE MAT

TREE LINE (TYP.)

TREE GREATER THAN 8" (TYP.)

LIMIT OF WETLAND RESOURCE AREA (TYP.) SEE REPORT

J8/503

100' BVW BUFFER

AREA NOT FLAGGED BECAUSE "OWNER" TOLD BOTANIST NOT TO.

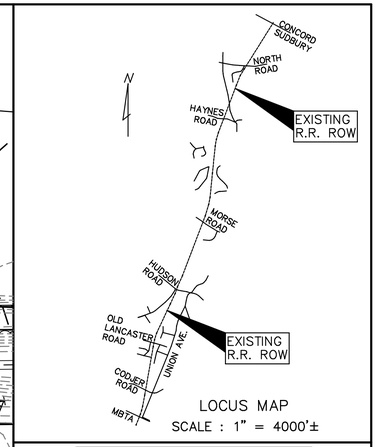
AREA NOT

J8/009 TOWN OF SUDBURY

APPROX. MEAN HIGH WATER FROM VEGETATION CHANGE

WASH BROOK FROM RECORD PLANS

RAILROAD STATION 257+00 TO 268+00



LOCUS MAP
SCALE : 1" = 4000'±

SURVEY NOTES

PORTIONS OF THE BANK OF HOP BROOK AND PANTRY BROOK COULD NOT BE ESTABLISHED ON TOWN LAND AS THE AREA WAS UNDER WATER AT THE TIME OF THE RESOURCE DELINEATION.

THE CONTOUR INTERVAL ON THE PLAN IS 1 FOOT. SOME CONTOURS ARE NOT LABELLED DUE TO THE SCALE OF THE PLAN AND THE STEEPNESS OF THE GROUND SLOPE.

TREES NOTATED AS "TREE GREATER THAN 8" (TYP)" REPRESENT THE FIELD LOCATED TREE NEAREST TO THE EXISTING RAIL LINES.

MBTA

J8/057

VP HABITAT AREA

POSSIBLE VERNAL POOL

VP HABITAT AREA

TREE/WOODS NOTE

TREELINES ARE SHOWN TO INDICATE THE APPROXIMATE BEGINNINGS AND ENDS OF WOODED RAIL AREAS.

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1915 RR

THE WIDTH OF THE RAILROAD RIGHT OF WAY OF 66 FT. WIDE BETWEEN STA 246+71± AND 247+00± DOES NOT AGREE WITH RECORDED PLANS SHOWING 57.04 FT. WIDE. RECORD PLANS HAVE BEEN HELD FOR THIS SURVEY.
PL. 664 OF 1970
PL. 244 OF 1988

246+29.50

WHISTLE POST

ISOLATED WETLANDS

ASSESSOR MAP/PARCEL (TYP.)

Potential Vernal Pool Area #18

Potential Vernal Pool Area #19

Potential Vernal Pool Area #16

Potential Vernal Pool Area #17

POSSIBLE VERNAL POOL

WATER EL.=133.77

LIMIT OF WETLAND RESOURCE AREA (TYP.) SEE REPORT

A PIPE EXISTS BUT IS BURIED RECORD PIPE IS 24" CI

TREE GREATER THAN 8" (TYP.)

WOODED AREA WITHIN R.R. RIGHT OF WAY

POSSIBLE VERNAL POOL

PT = 253+81.16

conc. bound fnd. 0.56' S12°42'48"E

30' WIDE EASEMENT

15' WIDE WATER EASEMENT

DETENTION BASIN NOT FLAGGED

ISOLATED WETLAND

PL. 266 OF 1982

50' WIDE R.O.W.

WATER EL.=133.84

SIGN

PAVING

GRAVEL

EXISTING BLDG

HORIZONTAL CONTROL
PLAN SYSTEM PT. # 9001
MASSGRID PT. # 12003
MONUMENT: STA 246+29.5

HORIZONTAL CONTROL
PLAN SYSTEM PT. #14
MASSGRID PT. # 12002
MONUMENT: 38F

K8/053

K8/052

K8/051

K8/050

VP HABITAT AREA 100' BVW BUFFER

100' BVW BUFFER

UNION AVE

RAILROAD STATION 249+29.5 TO 257+00

DRAWING FILE: RAILTRAILfinal2-gps2
ATLANTIC JOB NO. A0801-02

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COMMONWEALTH OF MASSACHUSETTS
JOHN B. PAULSON
No. 31725
PROFESSIONAL LAND SURVEYOR

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Date

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SHEET 2 OF 23

Potential Vernal Pool Area #15

GERRY DRIVE

OLD LANCASTER ROAD

WASHBROOK ROAD

RAILROAD STATION
279+00 TO 290+00

RAILROAD STATION
268+00 TO 279+00

MEADOW DRIVE

200' RIVERFRONT AREA

200' RIVERFRONT

100' BVW BUFFER

ASSESSOR MAP/PARCEL (TYP.)

J8/311 J8/309 J8/308 J8/307 J8/301 H8/011 J8/114 J8/115 J8/113 J8/112 J8/111 J8/101 H8/0045 PL. 1109 OF 1953 J8/004 J8/002 TOWN OF SUDBURY J8/009 TOWN OF SUDBURY J8/011 J8/116

1915 RR

EXISTING BLDG

VP HABITAT AREA

LIMIT OF WETLAND RESOURCE AREA (TYP.) SEE REPORT

WOODED AREA WITHIN R.R. RIGHT OF WAY

ISOLATED WETLAND
POSSIBLE VERNAL POOL 7/03/08

30 FT. WIDE DRAINAGE EASEMENT PL 1053 OF 1959

LAWN

ISOLATED WETLAND

WETLANDS

EXISTING SHED

EXSITING TRAIN RAIL (TYP.)

TREE GREATER THAN 8" (TYP.)

TREE LINE (TYP.)

BATTERY BOX

SIDEWALK

PAVING

12" CMP
I=154.40
HEADWALL

CB
R=158.59
I=154.61(12")

CB
R=158.78
I=154.93(12")

DMH
R=158.89
I=SEALED

DMH
R=159.29

PC = 288+45.28

EXISTING R.R. ROW

LOCUS MAP
SCALE : 1" = 4000'±

CONCORD
SUDBURY
NORTH ROAD
HAYNES ROAD
MORSE ROAD
HUDSON ROAD
OLD LANCASTER ROAD
COOPER ROAD
UNION AVE.
MBTA

SURVEY NOTES

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BENCHMARK # 5
ELEVATION = 141.73 NAD88
MONUMENT: RM 6-1

RAILROAD TIE & I BEAM PLATFORM

FEMA FLOOD ZONE "A" EL.=139

APPROX. MEAN HIGH WATER FROM VEGETATION CHANGE

APPROX. MEAN HIGH WATER FROM VEGETATION AND TOPOGRAPHY CHANGE

BORDERING WETLAND VEGETATION

HOP BROOK FROM RECORD PLANS

GRANITE BLOCK WALLS

EMH

WHISTLE POST

BVW

DIRT PATH

DRAWING FILE: RAILTRAILfinal2-gps2
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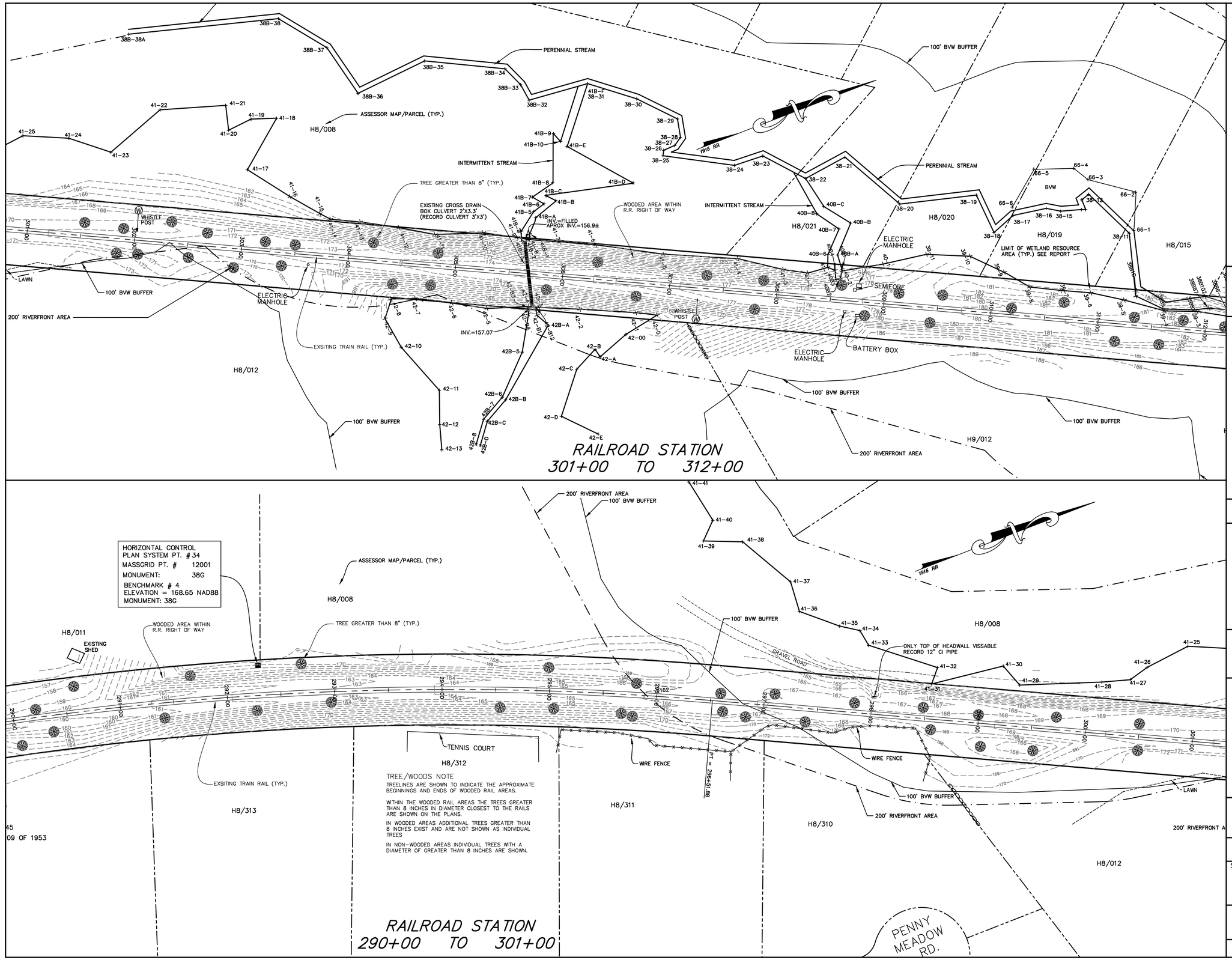

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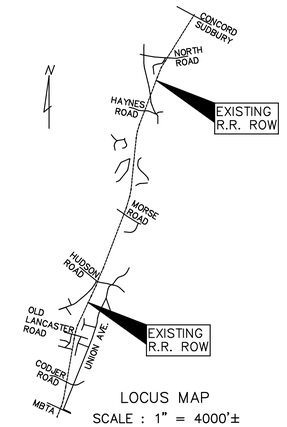

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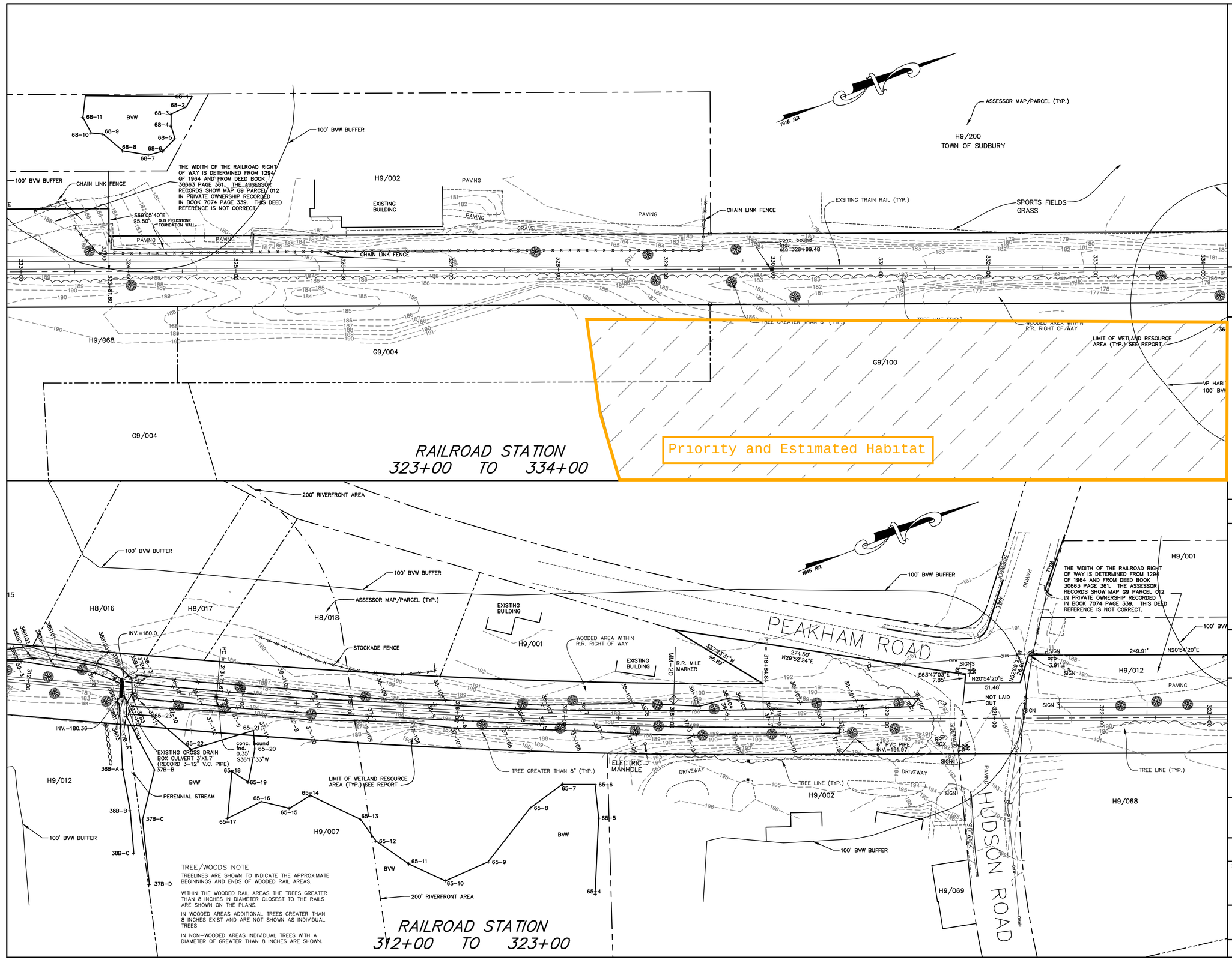
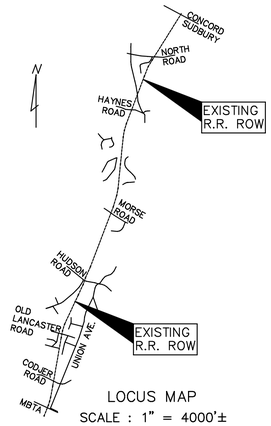
SHEET 4 OF 23





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Priority and Estimated Habitat

Potential Vernal Pool #12

Potential Vernal Pool #11

Certified Vernal Pool #13

Priority and Estimated Habitat

Potential Vernal Pool #14

RAILROAD STATION 345+00 TO 356+00

RAILROAD STATION 334+00 TO 345+00

ASSESSOR MAP/PARCEL (TYP.)

H9/0003
TOWN OF SUDBURY

H9/200
TOWN OF SUDBURY

F9/001
TOWN OF SUDBURY

F9/003

G9/300

G9/807

G9/806

G9/100

1915 RR

100' BVW BUFFER

VP HABITAT AREA

POSSIBLE VERNAL POOL 7/03/08

CERTIFIED VERNAL POOL

LIMIT OF WETLAND RESOURCE AREA (TYP.) SEE REPORT

EXSITING TRAIN RAIL (TYP.)

WOODED AREA WITHIN R.R. RIGHT OF WAY

TREE GREATER THAN 8" (TYP.)

TREE LINE (TYP.)

WHISTLE POST

DIRT PATH

AGRICULTURAL RESTRICTION PL 319 OF 1994

DRAINAGE EASEMENT PL 319 OF 1994

BVW

SPORTS FIELDS GRASS

STONE WALLS

EXISTING STONE ANIMAL CROSSING 9'WX 5'H (PARCIALLY FILLED)

BOTTOM=173.4'±

POSSIBLE VERNAL POOL DRY 7/03/08 ISOLATED WETLANDS

INTERMITTENT STREAM

MINEWAY BROOK

FEMA FLOOD ZONE "A" EL.=173

FEMA FLOOD ZONE "A" EL.=175

EXISTING CROSS DRAIN BOX CULVERT 2.5'X 2.5' (RECORD CULVERT 3'X3')

INV.=168.52

INV.=168.79

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LOCUS MAP
SCALE : 1" = 4000'±

CONCORD SUDBURY
NORTH ROAD
HAYNES ROAD
EXISTING R.R. ROW
MORSE ROAD
HUDSON ROAD
OLD LANCASTER ROAD
UNION AVE.
COOPER ROAD
MBTA

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Potential Vernal Pool #10

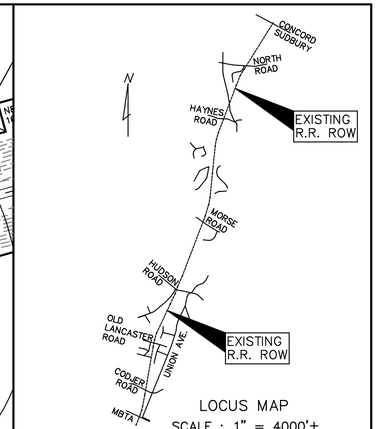
Sudbury Vernal Pool #9

Priority and Estimated Habitat

Potential Vernal Pool #11

RAILROAD STATION
367+00 TO 378+00

RAILROAD STATION
356+00 TO 367+00



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SHEET 7 OF 23

Potential Vernal Pool #8

Potential Vernal Pool #7

AREA NOT FLAGGED BECAUSE "OWNER" TOLD BOTANIST NOT TO.

POSSIBLE VERNAL POOL 7/03/08

APPROX. RIVER BANK

F9/128 F9/129 F9/130 F9/218 F9/509 F9/508 F9/507 E9/509 E9/508 E10/200

1915 RR

EXISTING BUILDING

DRIVEWAY

100' BVW BUFFER

VP HABITAT AREA

WOOD FENCE

WOODED AREA WITHIN R.R. RIGHT OF WAY

ASSESSOR MAP/PARCEL (TYP.)

200' RIVERFRONT AREA-APROX.

LAWN

PATH

15" AC PIPE INV.=130.68

EXISTING CROSS DRAIN BOX CULVERT 2'X2'

INV.=130.77

24B-1 TO 24B-4

INV.=131.70

POSSIBLE VERNAL POOL (DRY 7/3/08)

BVW

TRAIL/PRIVATE CROSSING

20 FT WIDE WALK EASEMENT PL. 97 OF 1977

50 FT. WIDE DRAINAGE EASEMENT PL. 97 OF 1977

LIMIT OF WETLAND RESOURCE AREA (TYP.) SEE REPORT

INTERMITTENT STREAM BANK

EXSITING TRAIN RAIL (TYP.)

TREE GREATER THAN 8" (TYP.)

RAILROAD STATION
389+00 TO 400+00

100' BVW BUFFER

200' RIVERFRONT AREA-APROX.

F9/217 F9/219 F9/125 F9/126 F9/127 F9/516 F9/515 F9/517 F10/511 F10/514

THE LOCATION OF RIGHT OF WAY WIDENING FROM DOES NOT MATCH THE LOCATION SHOWN ON PLAN 895 OF 1983

LOCATION PER PLAN 895 OF 1983

LOCATION PER RAILROAD PLANS

N84°24'21"W 16.50'

N05°35'39"E 150.00'

S84°24'21"E 16.50'

LOCATION PER PLAN 97 OF 1977

THE LOCATION OF RIGHT OF WAY WIDENING FROM DOES NOT MATCH THE LOCATION SHOWN ON PLAN 97 OF 1977

TREE/WOODS NOTE

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RAILROAD STATION
378+00 TO 389+00

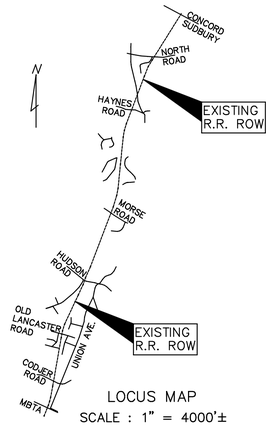
BISHOP LANE

INV.=133.05

INV.=133.29

EXISTING CROSS DRAIN BOX CULVERT 1.8'X2.5' (RECORD CULVERT 3'X 3')

APPROXIMATE DRAINAGE EASEMENT PL. 97 OF 1977



LOCUS MAP
SCALE : 1" = 4000'±

SURVEY NOTES

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TREES NOTATED AS "TREE GREATER THAN 8" (TYP)" REPRESENT THE FIELD LOCATED TREE NEAREST TO THE EXISTING RAIL LINES.

DRAWING FILE: RAILTRAILfinal2-gps2

ATLANTIC JOB NO. A0801-02

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COMMONWEALTH OF MASSACHUSETTS
JOHN B. PAULSON
No. 31725
PROFESSIONAL LAND SURVEYOR

JUNE 30, 2008
Date

ENGINEER:
ATLANTIC ENGINEERING & SURVEY CONSULTANTS INC.
97 TENNEY STREET – SUITE 5 – GEORGETOWN, MA 01833
PHONE: 978-352-7870 FAX: 978-352-9940

EXISTING CONDITIONS SURVEY PLAN AT PROPOSED RAIL TRAIL IN SUDBURY, MASS.

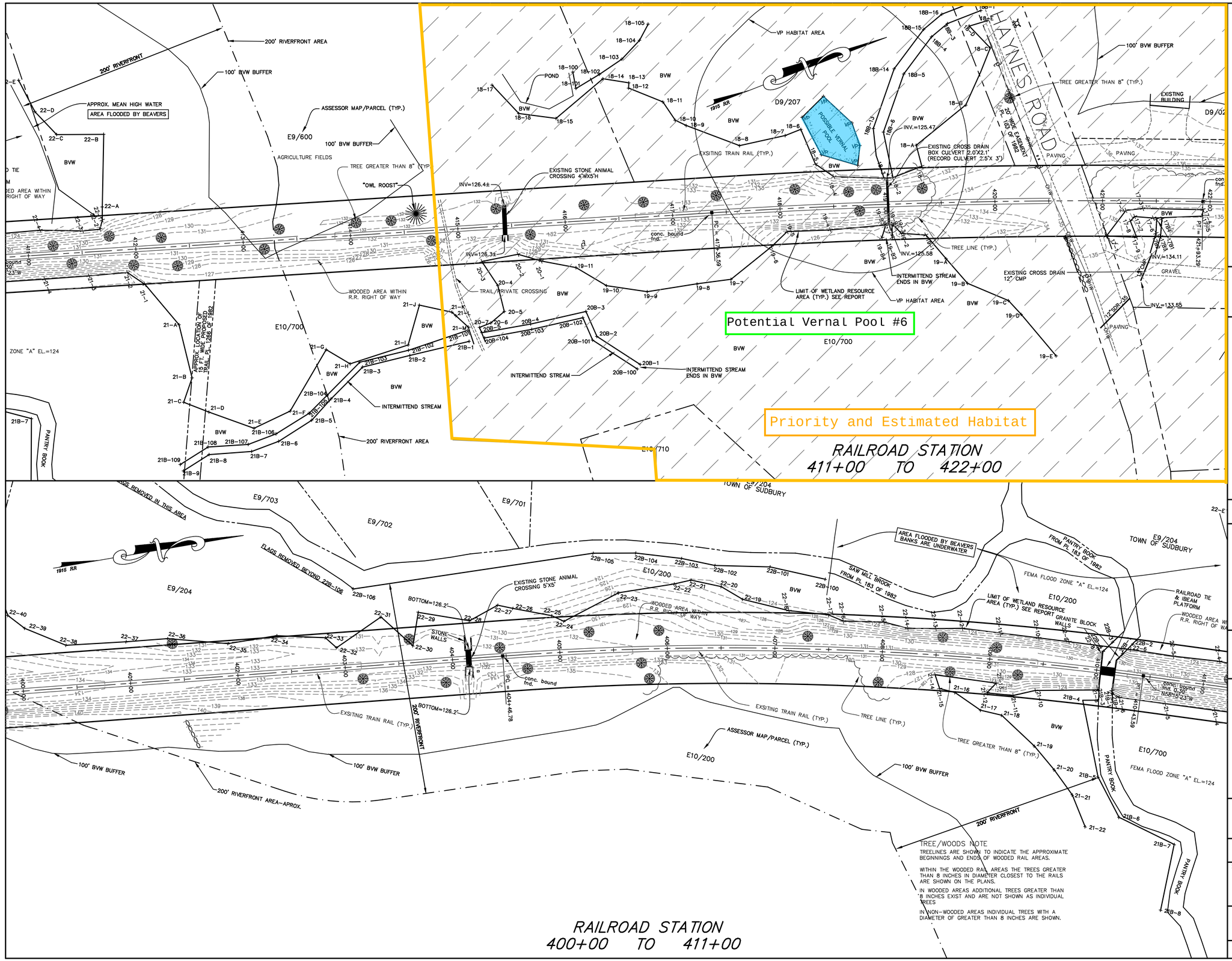
PREPARED FOR: TOWN OF SUDBURY
275 OLD LANCASTER ROAD
SUDBURY, MA 01776

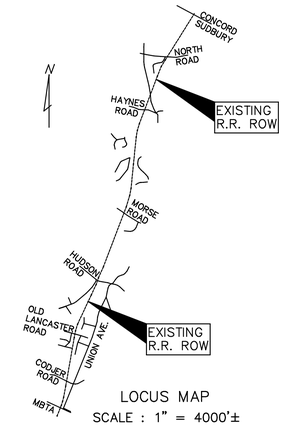
DATE: JUNE 30, 2008 (1ST SUBMISSION)

Submission #	date	description
2	7/23/2008	Site Plan with TOPO
3	3/18/2009	REVISIONS
4	7/28/2009	PROFILE

Scale: 1"= 40'
40 0 40 80

SHEET 8 OF 23





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Potential Vernal Pool #4

Priority and Estimated Habitat

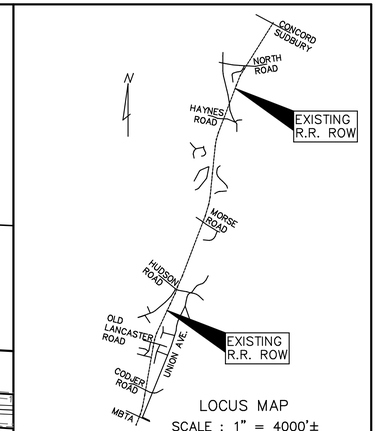
Potential Vernal Pool #3

Potential Vernal Pool #5

Priority and Estimated Habitat

RAILROAD STATION
433+00 TO 444+00

RAILROAD STATION
422+00 TO 433+00



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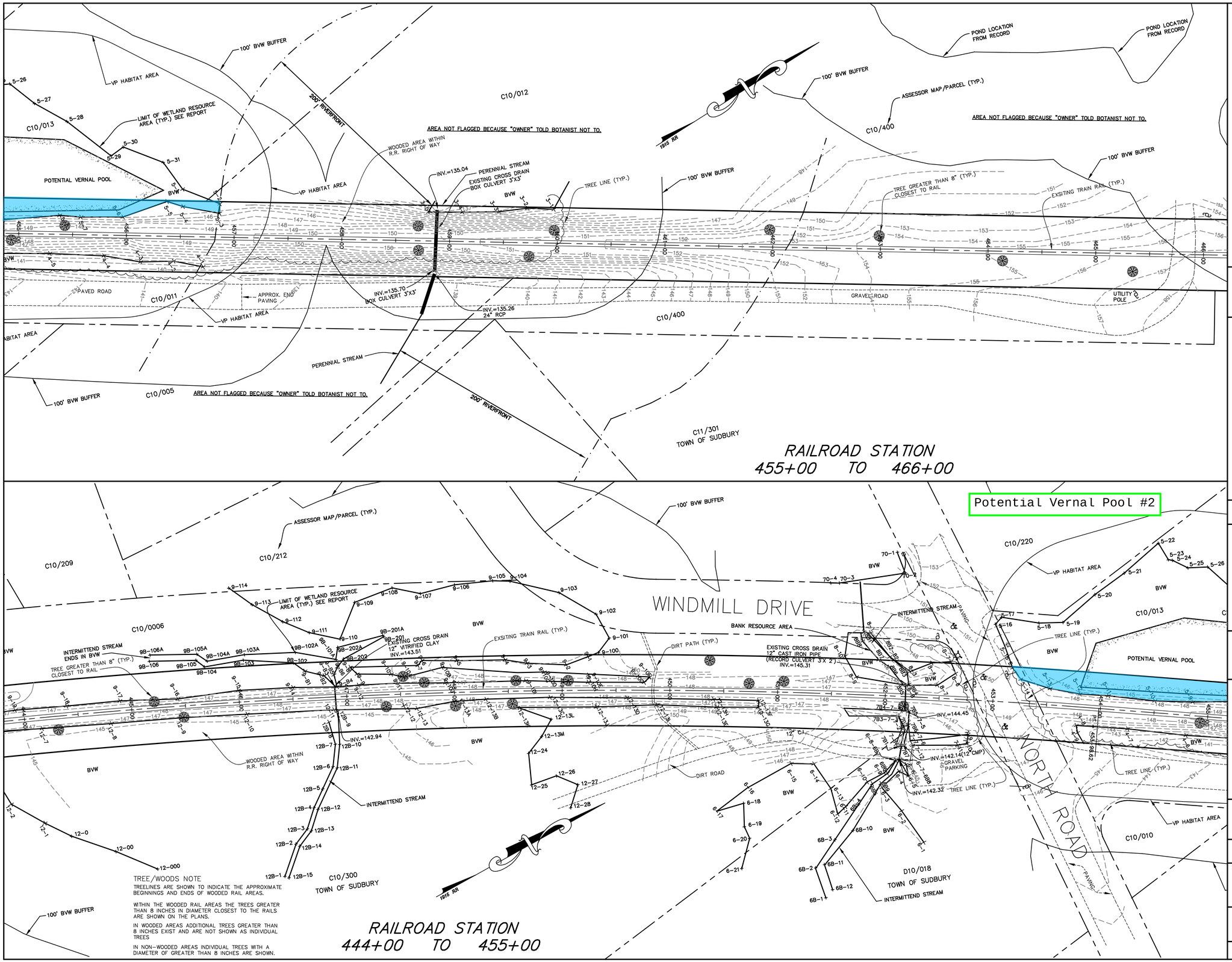

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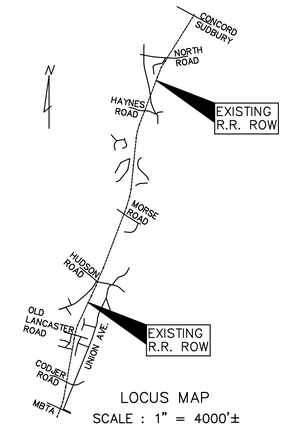

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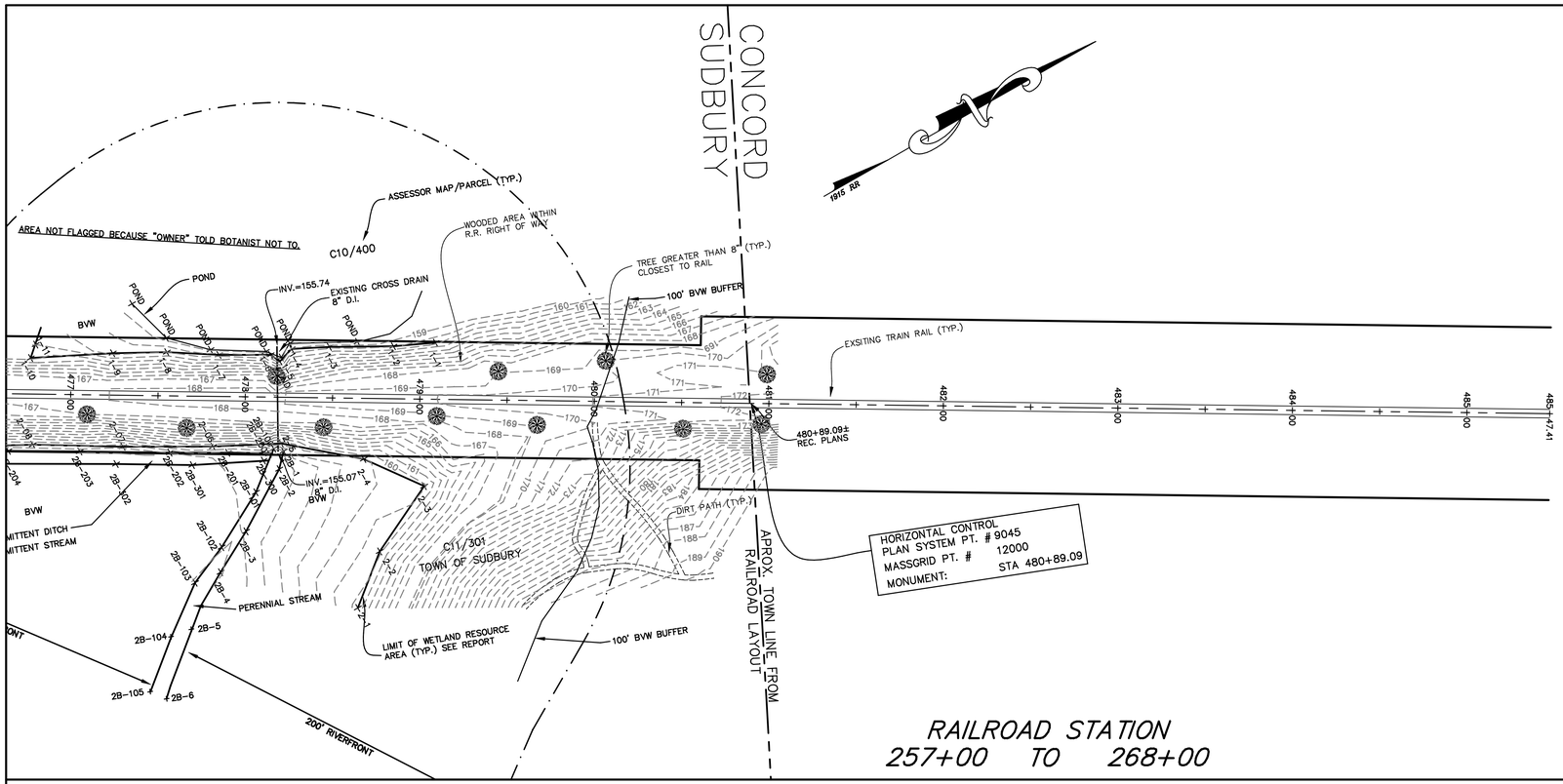

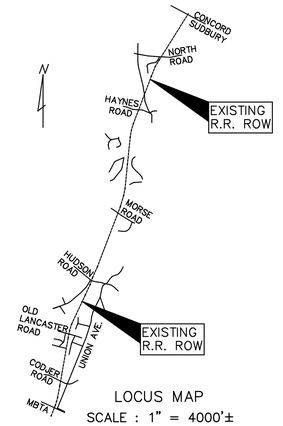

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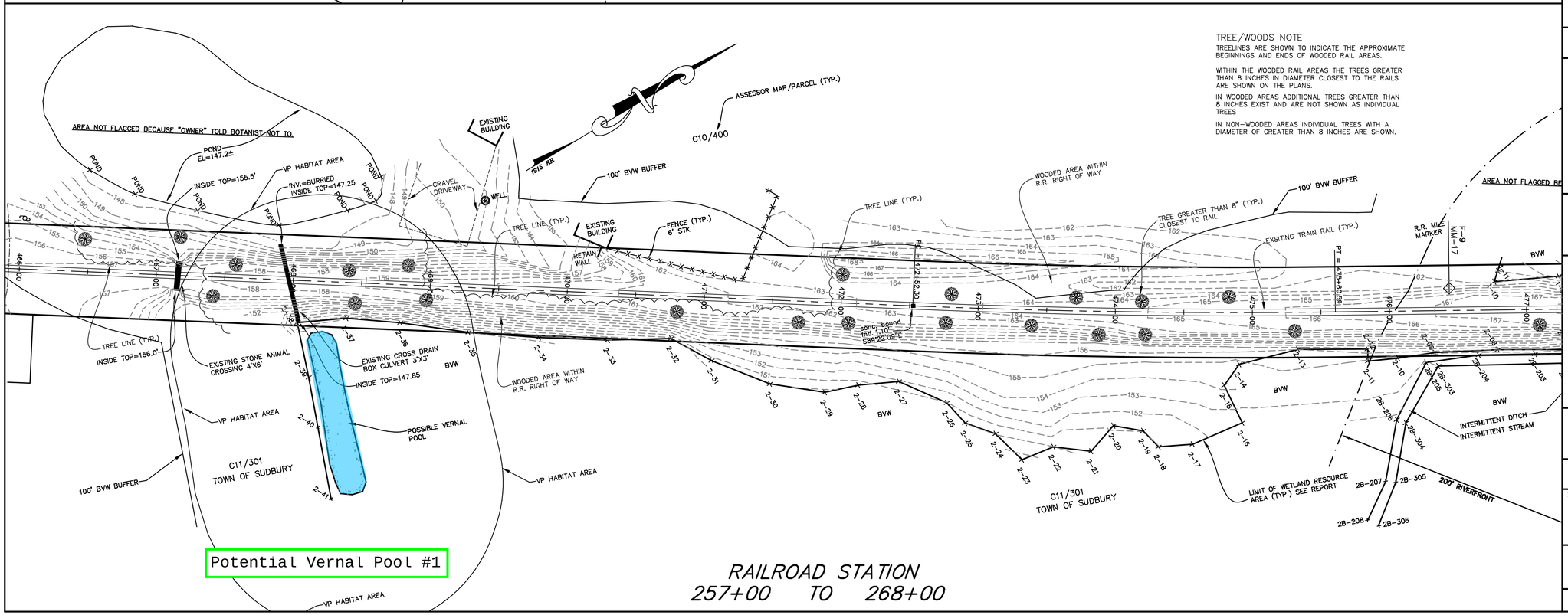

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